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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The EFSA Journal is a publication of the European Food Safety Authority, an agency of the European Union.
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 worldwide.

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, NSP3O, 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.

In total, 314,547 sheep were tested in 2017 in the EU: 306,551 sheep and 8,096 goats.

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%).

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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) 999/2001 (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/EC\(^2\), allowed 25 MSs (all except Bulgaria and Romania) to apply a revised BSE monitoring programme. Commission Implementing Decision

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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/EU 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. 36/2005) also provides for mandatory discriminatory testing for BSE of TSE cases detected in small ruminants.

Two changes were applied during 2017 following Regulation (EU) 2017/894:

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 I, 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) 2017/736, 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:
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.

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**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 ante-mortem (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.

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**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 |
|--------------|--------------------------|
| AM           | ES | FS | SU | 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 | No age limit |
| 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 |
1.2.3. TSE surveillance of small ruminants

As described in the 2016 EUSR on TSE (EFSA, 2017), the surveillance 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.

| Member State | 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.

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 |
| 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 |
| 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 slaughterling for human consumption of identified animals. | Slaughtered for human consumption point 3.1. (a) | SHC |
| 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 |
| 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 |

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| 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<sup>(a)</sup> | Surveillance target group | Population size<sup>(a)</sup> | 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) 2017/1972—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 of

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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.
The current report is compliant with Section II, Chapter B, Annex III of the TSE regulation.

The data in the 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 1059/2003.

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
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
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 ≤ 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 | Risk animals | Subtotal (ES + AM + FS) | Other | Total |
|---------|----------------------------|--------------|------------------------|-------|-------|
|         | 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 | 430 | 1 | 0 | 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 Castille-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      | 419   | 2    | 0    | 0    | 0    | 421  |
| DK      | 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      | 997   | 3    | 0    | 0    | 4    | 2    | 1,006|
| IE      | 1,659 | 0    | 1    | 0    | 0    | 1    | 1,661|
| IT      | 147   | 0    | 0    | 0    | 0    | 147  |
| LU      | 3     | 0    | 0    | 0    | 0    | 3    |
| NL      | 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      | 1     | 0    | 0    | 0    | 0    | 1    |
| SI      | 8     | 0    | 1    | 0    | 0    | 9    |
| SK      | 27    | 0    | 0    | 0    | 0    | 27   |
| UK      | 184,591 | 11  | 2    | 0    | 0    | 184,594|
| Total EU-28 | 190,102 | 11  | 5    | 5    | 6    | 190,129|
| BRA     | 1     | 1    | 0    | 0    | 0    | 2    |
| CAN     | 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      | 467   | 0    | 0    | 0    | 0    | 467  |
| USA     | 4     | 0    | 0    | 0    | 0    | 1    |
| 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     |
| BE      | 133   | 0     | 0     | 0     | 0     |
| CZ      | 29    | 0     | 0     | 0     | 0     |
| DE      | 416   | 0     | 0     | 0     | 0     |
| DK      | 15    | 0     | 0     | 0     | 0     |
| EL      | 1     | 0     | 0     | 0     | 0     |
| ES      | 797   | 1     | 0     | 0     | 0     |
| FI      | 1     | 0     | 0     | 0     | 0     |
| FR      | 968   | 0     | 0     | 1     | 0     |
| IE      | 1,655 | 0     | 1     | 0     | 0     |
| IT      | 142   | 0     | 0     | 0     | 0     |
| LU      | 3     | 0     | 0     | 0     | 0     |
| N       | 84    | 0     | 0     | 0     | 0     |
| PL      | 60    | 1     | 1     | 0     | 0     |
| PT      | 1,078 | 1     | 0     | 0     | 0     |
| SI      | 8     | 0     | 0     | 0     | 0     |
| SK      | 27    | 0     | 0     | 0     | 0     |
| UK      | 184,576 | 1     | 1     | 0     | 0     |
| **Total EU28** | **189,998** | **3** | **2** | **1** | **0** |
| CH      | 464   | 0     | 0     | 0     | 0     |
| **Total non-MSs** | **464** | **0** | **0** | **0** | **0** |
| **Total** | **190,462** | **3** | **2** | **1** | **0** |

BSE: bovine spongiform encephalopathy.

Each cell reports the total number of 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](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 |
| 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 | 2 | 9 | 10 |
| FR(a)        | 14 | 15 | 1 | 2 | 3 | 1 | 1 | 19 | 18 |
| IE           | 4 | 0 |     |     | 1 | 4 |
| 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 |

BSE: bovine spongiform encephalopathy.
### Bovine Spongiform Encephalopathy (BSE) Cases by Country and Year

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

**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](https://doi.org/10.5281/zenodo.1436520)
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).

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

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

3.2. TSE surveillance in small ruminants

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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<sup>(a)</sup> | Unknown<sup>(a)</sup> | Total |
|--------------|---------------------|--------------------------|-----------------|--------|
| Surveillance Target group | 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 | | 0 | 1,407 | 1,407 |
| BG | 0 | 386 | 18,343 | | 18,729 | 0 | 18,729 | | 0 | 18,729 | 18,729 |
| CY | 0 | 3,300 | 1,373 | | 4,673 | 0 | 4,673 | | 0 | 4,673 | 4,673 |
| CZ | 0 | 3,320 | 55 | | 3,375 | 0 | 3,375 | | 0 | 3,375 | 3,375 |
| DE | 0 | | | | | | 30 | 11,624 | 8,021 | 43 | 19,727 | 19,727 | 19,727 | |
| DK | 0 | 503 | 1 | 1 | 505 | | 0 | 505 | 505 | | |
| EE | 0 | | | | | | | 30 | 30 | 30 | 30 | | |
| EL | 1,628 | 71 | 4 | 28 | 1,731 | 0 | 3,068 | 3,249 | 148 | 6,473 | 8,205 | | |
| ES | 6,594 | 13,084 | 10,541 | | 23,636 | 0 | 23,636 | | | 30,230 | 30,230 | | |
| FI | 0 | 1,643 | | | 1,643 | 0 | 1,643 | | 0 | 1,643 | 1,643 | | |
| FR | 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 | 3,488 | 3,488 | | 6,321 | 8,449 | 1 | 14,771 | 0 | 14,771 | 18,259 | | |
| IE | 210 | 293 | 0 | 604 | 160 | 1 | 161 | 0 | 10,329 | 10,244 | 0 | 20,573 | 20,734 | 21,338 | |
| IT | 5,513 | 17 | 6,336 | 11 | 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 | | | | 1,512 | 0 | 1,513 | 1,513 | | |
| PL | 0 | 10,140 | 12,283 | 3 | 22,426 | 0 | 22,426 | 22,426 | | |
| PT | 0 | | | | 15,059 | 6,299 | 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 | 2,075 | 197 | 10 | 2,282 | 0 | 2,282 | 2,285 | |
## Flock status

| Surveillance Target group | TSE-infected flocks | Other flocks<sup>(a)</sup> | Unknown<sup>(a)</sup> | Total |
|---------------------------|---------------------|---------------------------|----------------------|--------|
|                           | EM      | NSHC | SHC | SU | EM     | NSHC | SHC | SU | EM     | NSHC | SHC | SU | Subtotal unknown | Subtotal non-infected flocks | Total |
| 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    |    |    | 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    | 0   | 0   | 0    | 1     | 1   | 0   | 0   |                |                            | 1     |
| IS                        | 0       | 0    | 0   | 0   | 0    | 0    | 0   | 1   | 77   | 3,563  | 6   | 3,646|    |                |                            | 3,646 |
| NO                        | 0       | 325  | 6,766| 11,518| 18,609| 0    | 0   | 1   | 77   | 3,563  | 6   | 3,646|    |                |                            | 18,609 |
| **Total non-MSs**         | **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 |
|-------------|--------------------|------------------------|-------------------|-------|
|             | Subtotal TSE-infected herds | Subtotal Other herds | Subtotal Unknown | Subtotal non-infected herds | |
| Surveillance Target group | EM | NSHC | SHC | SU | EM | NSHC | SHC | SU | EM | NSHC | SHC | SU | EM | NSHC | SHC | SU | EM | NSHC | SHC | SU | |
| AT | 0 | 0 | 760 | 32 | 0 | 792 | 0 | 792 | |
| BE | 0 | 0 | 552 | 1 | 0 | 553 | 0 | 553 | |
| BG | 0 | 0 | 127 | 1,441 | 0 | 1,568 | 0 | 1,568 | |
| CY | 243 | 243 | 5,172 | 2,875 | 8,047 | 0 | 8,047 | 8,290 | |
| CZ | 0 | 0 | 546 | 546 | 0 | 546 | 0 | 546 | |
| DE | 0 | 0 | 0 | 5 | 1,684 | 235 | 1,932 | 1,932 | 1,932 | |
| DK | 0 | 0 | 106 | 106 | 0 | 106 | 0 | 106 | 106 | |
| EE | 0 | 0 | 0 | 57 | 57 | 57 | 0 | 57 | 57 | |
| EL | 368 | 1 | 5 | 374 | 0 | 16 | 977 | 1,186 | 45 | 2,224 | 2,224 | 2,598 | |
| ES | 918 | 0 | 9,559 | 7,847 | 17,406 | 0 | 17,406 | 18,324 | |
| FI | 0 | 0 | 199 | 199 | 0 | 199 | 0 | 199 | |
| FR | 123 | 638 | 761 | 16,797 | 4,987 | 21,784 | 0 | 21,784 | 22,545 | |
| HR | 0 | 0 | 351 | 351 | 0 | 351 | 0 | 351 | 351 | |
| HU | 2 | 2 | 132 | 123 | 1 | 256 | 0 | 256 | 258 | |
| IE | 0 | 0 | 7 | 147 | 0 | 147 | 0 | 147 | 154 | 154 | |
| IT | 623 | 17 | 302 | 4 | 946 | 24 | 7,111 | 20,246 | 27,381 | 0 | 27,381 | 28,327 | |
| LT | 0 | 0 | 34 | 34 | 0 | 34 | 0 | 34 | 34 | |
| LU | 0 | 0 | 103 | 103 | 0 | 103 | 0 | 103 | 103 | |
| LV | 0 | 0 | 6 | 6 | 0 | 6 | 0 | 6 | 6 | |
| MT | 0 | 0 | 109 | 101 | 210 | 0 | 210 | 210 | |
| NL | 0 | 0 | 0 | 0 | 1,504 | 0 | 0 | 1,504 | 1,504 | 1,504 | |
| PL | 0 | 0 | 3,521 | 320 | 3,841 | 0 | 3,841 | 3,841 | |
| PT | 0 | 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 | 0 | 152 | 152 | 0 | 152 | 0 | 152 | 152 | |
| SI | 0 | 0 | 435 | 74 | 6 | 515 | 0 | 515 | 515 |
### EUSR on Transmissible Spongiform Encephalopathies in 2017

| Herd status   | TSE-infected herds | Other herds<sup>a</sup> | Unknown<sup>a</sup> | 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 | Total |
| SK            | 1  | 5    | 6   | 274 | 274                           |     |      |    | 0  | 274                           |     |      |    | 0  | 274                           |                | 280 |
| UK            | 295 | 78   | 373 | 518 | 518                           |     |      |    | 0  | 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  |      | 0   | 0  | 0                              |     |      |    | 0  | 0                              |     |      |    | 1  | 0                              |                | 1  |
| IS            | 0  |      | 0   | 1  | 0                              |     |      |    | 16 | 16                             |     |      |    | 16 | 16                             |                | 16 |
| NO            | 0  | 300  | 0   | 0  | 0                              |     |      |    | 0  | 300                           |     |      |    | 0  | 300                           |                | 300 |
| **Total non-MSs** | 0  | 0    | 0   | 0  | 0                              |     | 300  | 0   | 0  | 0                              |     |      |    | 16 | 0                              |                | 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.

<sup>a</sup>: 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

| Surveillance target group | Atypical scrapie (AS) | Classical scrapie (CS) | Unknown |
|---------------------------|----------------------|------------------------|---------|
|                           | No       | Yes     | Total | No       | Yes     | Total | No   | Total |
|                           | NSHC Subtotal | NSHC Subtotal | NSHC Subtotal | NSHC Subtotal | NSHC Subtotal | NSHC Subtotal | NSHC Subtotal | NSHC Subtotal |
| EM                        | 0        | 1       | 1     | 0        | 1       | 1     | 0    | 1     |
| BG                        | 0        | 0       | 0     | 0        | 0       | 0     | 0    | 0     |
| CY                        | 0        | 0       | 0     | 1        | 1       | 2     | 0    | 2     |
| CZ                        | 0        | 1       | 1     | 0        | 0       | 0     | 0    | 1     |
| DE                        | 0        | 3       | 4     | 0        | 0       | 0     | 0    | 4     |
| EL                        | 0        | 0       | 0     | 78       | 87      | 165   | 1    | 166   |
| ES                        | 1        | 3       | 4     | 1        | 1       | 2     | 0    | 2     |
| FR                        | 0        | 3       | 3     | 0        | 0       | 0     | 0    | 3     |
| HU                        | 4        | 4       | 8     | 10       | 14      | 24    | 0    | 14    |
| IE                        | 0        | 1       | 1     | 2        | 7       | 9     | 2    | 11    |
| IT                        | 0        | 1       | 1     | 191      | 192     | 384   | 7    | 391   |
| PL                        | 0        | 5       | 5     | 0        | 0       | 0     | 0    | 5     |
| PT                        | 0        | 25      | 25    | 0        | 0       | 0     | 0    | 25    |
| RO                        | 0        | 0       | 0     | 14       | 15      | 29    | 0    | 29    |
| SE                        | 0        | 2       | 2     | 0        | 0       | 0     | 0    | 2     |
| SK                        | 0        | 5       | 5     | 6        | 11      | 17    | 4    | 21    |
| UK                        | 0        | 11      | 11    | 0        | 0       | 0     | 0    | 11    |
| Total EU                 | 1        | 4       | 5     | 66       | 89      | 155   | 7    | 162   |
| IS                        | 0        | 0       | 0     | 0        | 1       | 1     | 0    | 1     |
| NO                        | 0        | 7       | 7     | 13       | 13      | 26    | 0    | 13    |
| Total non-MSs             | 0        | 0       | 0     | 0        | 0       | 0     | 0    | 0     |
| Total                     | 1        | 4       | 5     | 73       | 102     | 175   | 7    | 182   |

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

| Surveillance target group | Case type | Atypical scrapie (AS) |  | Classical scrapie (CS) |  |  | Total |  |  | Total |
|---------------------------|-----------|----------------------|--|-----------------------|--|--|-------|--|--|--|-------|
|                           | Index case | No | Yes | Total | No | Yes | Total | No | Yes | Total |
| BG                        | EM NSHC SHC Subtotal | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 |
| CY                        | 1 | 1 | 0 | 1 | 198 | 179 | 90 | 467 | 17 | 484 | 485 |
| DE                        | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| EL                        | 0 | 0 | 0 | 0 | 62 | 7 | 15 | 10 | 25 | 25 |
| ES                        | 1 | 1 | 1 | 2 | 30 | 15 | 3 | 4 | 25 | 11 |
| FR                        | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT                        | 0 | 1 | 2 | 3 | 3 | 1 | 4 | 5 | 8 | 11 |
| RO                        | 0 | 0 | 0 | 0 | 0 | 2 | 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.

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        |      |      |      |      |      |      |      | 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          |      |      |      |      |      |      |      | 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        |      |      |      |      |      |      |      | 401      |
| PT      | 15         | 4    | 1    | 6    |      |      |      |      | 33       |
| RO      | 72         | 112  | 127  | 154  | 95   | 98   | 75   | 76   | 809      |
| SI      | 176        |      |      |      |      |      |      |      | 176      |
| SK      | 92         |      |      |      |      |      |      |      | 132      |
| UK      | 1,848      | 133  | 6    | 6    |      |      |      |      | 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 | 581 | 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](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    |      |      |      |      |      |      | 6        |
| CZ      | 1          |      |      |      |      |      |      |      | 8        |
| DE      | 61         | 19   | 8    | 7    | 10   | 10   | 5    | 4    | 124      |
| DK      | 7          | 5    |      |      |      |      |      |      | 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          |      |      |      |      |      |      |      | 13       |
| FR      | 483        | 24   | 22   | 10   | 6    | 5    | 4    | 3    | 557      |
| HR      | 0          |      |      |      |      |      |      |      | 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    | 2    |      |      |      |      | 10       |

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| 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](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          |      |      |      |      |      |      |      |          |
| 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   |      |      |      |      |      | 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](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          |      |      |      |      |      |      |      | 2        |
| DE      | 0          | 1    |      |      |      |      |      |      | 2        |
| EL      | 0          | 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    |      |      |      |      | 14       |
| SI      | 0          |      |      |      |      |      |      |      | 1        |
| Total EU 28 | 69       | 14   | 11   | 13   | 15   | 14   | 13   | 9    | 158      |
| NO      | 0          |      |      |      |      |      |      |      | 0        |
| 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](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).
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.

**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 | BSE-not-excluded | BSE-excluded | Inconclusive | Total | % of total classical TSE cases (a) | % of total atypical TSE cases (b) | Cases not submitted for discriminatory testing or blank |
|---------|-------------|--------------------------------------|-------------------------|------------------|--------------|--------------|-------|----------------------------------|----------------------------------|----------------------------------|
| AT      | 1           | 1                                    | 0                       | 0                | 0            | 0            | 0     | 0.0%                             | 0.0%                             | 1                                |
| BG      | 1           | 1                                    | 0                       | 1                | 0            | 1            | 0     | 100.0%                           | 0.0%                             | 0                                |
| CY      | 2           | 2                                    | 0                       | 0                | 0            | 0            | 0     | 0.0%                             | 0.0%                             | 2                                |
| CZ      | 1           | 1                                    | 0                       | 1                | 0            | 1            | 0     | 0.0%                             | 100.0%                           | 0                                |
| DE      | 4           | 4                                    | 0                       | 0                | 0            | 0            | 0     | 0.0%                             | 0.0%                             | 4                                |
| EL      | 247         | 247                                  | 0                       | 73               | 0            | 73           | 0     | 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%                             | 0.0%                             | 3                                |
| HU      | 14          | 14                                   | 0                       | 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%                             | 0.0%                             | 7                                |
| PT      | 29          | 29                                   | 0                       | 0                | 0            | 0            | 0     | 0.0%                             | 0.0%                             | 29                               |
| RO      | 76          | 76                                   | 0                       | 76               | 0            | 76           | 0     | 100.0%                           | 0.0%                             | 0                                |
| SE      | 2           | 2                                    | 0                       | 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%                             | 0.0%                             | 12                               |
| Total EU 28 | 933 | 839                                  | 94                      | 0                | 672          | 7            | 679   | 81%                              | 17.02%                           | 254                              |
| IS      | 1           | 1                                    | 0                       | 1                | 0            | 1            | 1     | 100.0%                           | 0.0%                             | 0                                |
| NO      | 13          | 13                                   | 0                       | 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 | % of total classical TSE cases<sup>(a)</sup> | % of total atypical TSE cases<sup>(b)</sup> | Cases not submitted for discriminatory testing or blank |
|---------|-------------|-------------------------------------|-------------------------|---------------------------------------------|------------------------------------------|------------------------------------------|-------------------------------------------------|
| BG      | 2           | 2                                   | 0                       | 2                                           | 100.0%                                  | 0.0%                                     | 0                                               |
| CY      | 485         | 484                                 | 1                       | 0                                           | 3.7%                                    | 0.0%                                     | 467                                             |
| DE      | 1           | 1                                   | 0                       | 0                                           | 0.0%                                    | 0.0%                                     | 1                                               |
| EL      | 25          | 25                                  | 2                       | 0                                           | 52.0%                                   | 0.0%                                     | 12                                              |
| ES      | 36          | 34                                  | 2                       | 0                                           | 100.0%                                  | 100.0%                                  | 0                                               |
| FR      | 2           | 2                                   | 0                       | 0                                           | 0.0%                                    | 0.0%                                     | 2                                               |
| IT      | 11          | 8                                   | 3                       | 0                                           | 100.0%                                  | 100.0%                                  | 0                                               |
| RO      | 2           | 2                                   | 0                       | 0                                           | 100.0%                                  | 0.0%                                     | 0                                               |
| UK      | 3           | 3                                   | 0                       | 0                                           | 100.0%                                  | 0.0%                                     | 0                                               |
| Total EU 28 | 567   | 558                                 | 9                       | 0                                           | 15.2%                                   | 50.0%                                   | 482                                             |

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

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

<sup>(b)</sup>: 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 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   |
| 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, NSP3O, NSP4 and NSP5), consistent with the pattern observed in all cases reported over the last 10 years. For AS, the same genotype groups (NSP3, NSP3O, 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, NSP3O, 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 | Total |
|-----------|------------------|-------------------|-------|
|           | NSP1 | NSP2 | NSP3 | NSP3O | NSP4 | NSP5 | Unknown | Total | NSP1 | NSP2 | NSP3 | NSP3O | NSP4 | NSP5 | Unknown | Total |
| AT        | 1    |      |      |   0   | 1    |      |         | 1     |      |      |      | 1    |      |         |       | 0    |
| BG        | 0    |      |      |   1   |      |      |         | 1     |      |      |      | 1    |      |         |       | 2    |
| CY        | 0    |      |      |   1   |      |      |         | 1     |      |      |      | 1    |      |         |       | 2    |
| CZ        | 1    |      |      |   2   |      |      |         | 4     |      |      |      | 1    |      |         |       | 0    |
| DE        | 2    |      |      |   2   |      |      |         | 4     |      |      |      | 0    |      |         |       | 0    |
| EL        | 0    |      |      |   8   | 175  | 36   | 9       | 19    | 247  | 0    |      | 0    |      |         |       |      |
| ES        | 1    | 4    | 4    | 1    | 2    | 12   | 3       | 203   | 5    | 36   | 247  | 0    |      |         |       |      |
| FR        | 1    | 1    |      |      |      |    3 | 1       |       |      |      | 3    | 0    |      |         |       |      |
| HU        | 1    | 1    | 3    | 9    |      |      | 14      |       |      |      | 14   | 0    |      |         |       |      |
| IE        | 1    |      |      | 4    | 2    | 5    | 11      |       |      |      | 11   | 0    |      |         |       |      |
| IT        | 1    | 1    |      |      |      | 3    | 220     | 13    | 5    | 2    | 240(a) | 0    |      |         |       |      |
| PL        | 2    | 3    |      |      |      |    7 |         |       |      |      | 7    | 0    |      |         |       |      |
| PT        | 2    | 4    | 2    | 3    |      | 18   | 29      |       |      |      | 29   | 0    |      |         |       |      |
| RO        | 0    |      |      | 1    | 53   | 2    | 20      |       |      |      | 20   | 0    |      |         |       |      |
| SE        | 1    | 1    |      |      |      | 2    |         |       |      |      | 2    | 0    |      |         |       |      |
| SK        | 1    | 1    | 2    | 1    |      | 5    | 1       | 12    | 2    | 15   |       |      |         |       |      |
| UK        | 3    | 5    |      |      |      | 4    | 12      |       |      |      | 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       |       | 1    |
| NO        | 3    | 4    | 1    | 4    |      | 1    | 13      |       |      |      |      |      |      | 0       |       |      |
| Total non-MSs | 3    | 4    | 1    | 4    |      | 0    | 13      | 0     | 0    | 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) 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 | NSP1 | NSP2 | NSP3 | NSP3O | NSP4 | NSP5 | Other | Total |
|---------|------|------|------|-------|------|------|-------|-------|
| 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%) | 9 (2.6%) | 15 (4.2%) | 49 (7.9%) | 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.
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*), raccoon dog (*Nyctereutes procyonoides*) and bison (*Bison bison*). None of these tested positive (Table 24).

![Graph showing frequency distribution of the three genotype groups in sheep](image.png)

Data from Cyprus were excluded. NSP1: Resistant (black); NSP2: Semi-resistant (grey); NSP3 (orange) + NSP3O (yellow) + NSP4 (red) + SNP5 (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

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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<sup>(a)</sup> | SEMI-DOMESTICATED/FARMED DEER species<sup>(a)</sup> | Sub total | A | B | C | D | E | F | G | H | Sub total | Total |
|---------|----------------------------------|--------------------------------------------------|-----------|---|---|---|---|---|---|---|---|-----------|-------|
| BE      |                                  |                                                  |           | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 3 |
| DK      |                                  |                                                  |           | 0 | 0 | 0 | 27 | 0 | 0 | 3 | 2 | 1 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| ES      |                                  |                                                  |           | 0 | 0 | 0 | 15 | 0 | 0 | 38 | 6 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| FI      |                                  |                                                  |           | 0 | 13 | 47 | 12 | 20 | 0 | 0 | 0 | 92 | 0 | 16 | 1 | 0 | 0 | 0 | 1 | 4 | 22 | 114 |
| HU      |                                  |                                                  |           | 0 | 0 | 0 | 21 | 0 | 0 | 2 | 1 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| IT      |                                  |                                                  |           | 1 | 0 | 0 | 362 | 0 | 0 | 131 | 16 | 0 | 510 | 13 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 18 | 528 |
| LV      |                                  |                                                  |           | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 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 | 176 |
| UK      |                                  |                                                  |           | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 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 | 0 | 54 | 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

<sup>(a)</sup> 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.
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

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

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

TSE: transmissible spongiform encephalopathy.
(a): All tests were negative.
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; MT; NL; PL; PT; RO; SK; SI; ES; SE; UK.

**Non-MS reporting countries:** CH (including Liechtenstein); IS; NO.
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 | < 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                | AT          | 0    | 1     | 3     | 4     | 6     | 8     | 11    | 5     | 2      | 3     | 4     | 6     | 5     | 3     | 1       | 0      | 17,155 |
|                   | BE          | 1     | 3     | 4     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13     | 14     | 25,434 |
|                   | BG          | 0     | 3     | 7     | 12    | 16    | 21    | 26    | 31    | 37    | 44    | 52    | 60    | 72    | 100   | 141    | 1,171  |
|                   | CY          | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0       | 1      | 1,711  |
|                   | 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     | 7     | 1,007 | 894    | 607    | 400    | 201    | 124    | 64    | 34    | 15    | 32    | 0      | 3,385  |
|                   | EL          | 32    | 7     | 124   | 107   | 1,774  | 1,609  | 3,057  | 2,845  | 2,070  | 1,434 | 1,028 | 788   | 622   | 459   | 352     | 20,158 |
|                   | ES          | 3     | 37    | 7     | 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   | 318   | 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     | 0     | 4      | 45     | 52     | 40     | 23     | 23    | 10    | 3     | 1     | 1       | 0       | 202    |
|                   | NL          | 18     | 70    | 198   | 10,743 | 10,833 | 8,931  | 6,401  | 4,250  | 2,399  | 1,416 | 691   | 375   | 584   | 233     | 47,142  |
|                   | PL          | 6      | 1     | 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 | <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 |
|------------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|--------|-------|
| 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**     |              | 5   | 781   | 797   | 25,488| 24,675| 24,245| 19,979| 14,776| 10,956| 8,050 | 5,393 | 4,081 | 3,088 | 8,837 | 352   | 140,447|
| 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    | 47    | 575   | 3,366 | 3,505 | 2,966 | 2,178 | 1,828 | 1,236 | 695   | 476   | 328   | 599  | 603    | 18,526|
| **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**        |              | 35  | 1,507 | 6,586 | 26,639| 39,820| 215,064| 202,411| 164,823| 126,215| 94,285| 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) | EU | 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 | 2144 | 1729 | 863 | 490 | 1140 |
|                  | BE           | 1                  | 3   | 3   | 14  | 7510 | 6217 | 4376 | 2890 | 1702 | 1002 | 600 |
|                  | BG           | 0                  | 361 | 654 | 446 | 411  | 383  | 348  | 356  | 300  | 265  | 242  |
|                  | CY           | 0                  | 0   | 0   | 257 | 260  | 223  | 161  | 106  | 70   | 40   | 25   |
|                  | CZ           | 12                 | 1,772 | 1,604 | 3,277 | 3,051 | 2,838 | 2,065 | 1,426 | 1,021 | 782  | 619  |
|                  | DE           | 110                | 166 | 160 | 832 | 37,711 | 35,948 | 28,043 | 19,340 | 12,403 | 7,902 | 4,778 |
|                  | DK           | 46                 | 6   | 9   | 207 | 6,868 | 6,285 | 3,869 | 2,172 | 1,071 | 584  | 335  |
|                  | EE           | 0                  | 0   | 0   | 7   | 1,007 | 894  | 607  | 400  | 201  | 124  | 64   |
|                  | EL           | 20                 | 4   | 22  | 21  | 162  | 134  | 533  | 399  | 297  | 228  | 120  |
|                  | ES           | 0                  | 33  | 2   | 41  | 11,077 | 10,093 | 7,864 | 5,744 | 4,064 | 3,299 | 2,586 |
|                  | FI           | 3                  | 1   | 35  | 3,025 | 3,060 | 2,127 | 1,278 | 778  | 418  | 267  | 177  |
|                  | FR           | 248                | 490 | 1108 | 4330 | 37211 | 35192 | 28794 | 22153 | 16817 | 13440 | 10385 |
|                  | HR           | 2                  | 7   | 3   | 2   | 919  | 948  | 714  | 592  | 525  | 331  | 207  |
|                  | HU           | 116                | 1150 | 885 | 2063 | 2098 | 1617 | 1047 | 733  | 422  | 285  | 223  |
|                  | IE           | 25                 | 23  | 20  | 163 | 8,773 | 8,294 | 7,784 | 7,146 | 6,430 | 5,138 | 4,273 |
|                  | IT           | 7                  | 10  | 12  | 72  | 14,541 | 12,712 | 9,067 | 6,186 | 3,955 | 2,640 | 1,714 |
|                  | LT           | 0                  | 0   | 0   | 0   | 752  | 613  | 466  | 360  | 314  | 196  | 139  |
|                  | LU           | 0                  | 0   | 0   | 0   | 563  | 548  | 433  | 285  | 197  | 128  | 89   |
|                  | LV           | 20                 | 368 | 357 | 592 | 623  | 532  | 353  | 255  | 207  | 126  | 102  |
|                  | MT           | 0                  | 0   | 0   | 4   | 45   | 52   | 40   | 23   | 23   | 10   | 3    |
|                  | NL           | 18                 | 70  | 0   | 197 | 10,737 | 10,829 | 8,927 | 6,397 | 4,250 | 2,398 | 1,416 |
|                  | PL           | 0                  | 0   | 0   | 0   | 7,942 | 7,787 | 6,004 | 4,540 | 3,505 | 2,509 | 1,687 |
|                  | PT           | 0                  | 0   | 0   | 0   | 4,126 | 2,819 | 2,296 | 1,740 | 1,107 | 1,216 | 1,309 |
|                  | RO           | 25                 | 497 | 644 | 1,050 | 1,034 | 935  | 784  | 649  | 580  | 477  | 409  |
|                  | SE           | 20                 | 88  | 127 | 535 | 1,674 | 1,650 | 1,258 | 767  | 436  | 294  | 181  |
|                  | SI           | 7                  | 15  | 7   | 14  | 1,150 | 1,253 | 1,051 | 818  | 600  | 466  | 284  |
|                  | SK           | 2                  | 690 | 625 | 1,200 | 1,293 | 1,116 | 767  | 563  | 394  | 260  | 204  |
|                  | UK           | 3                  | 91  | 172 | 886 | 24,239 | 24,343 | 20,889 | 17,006 | 13,700 | 10,254 | 7,502 |

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| EU/non-MSs group | Country code | Age group (months) | Total EU | Total non-MSs | Total |
|-----------------|-------------|--------------------|----------|--------------|-------|
|                 |             | < 24               | 685      | 34           | 719   |
|                 |             | 24–29              | 6,155    | 88           | 6,243 |
|                 |             | 30–35              | 6,613    | 44           | 6,657 |
|                 |             | 36–47              | 16,260   | 566          | 16,826|
|                 |             | 48–59              | 191,321  | 3,362        | 194,683|
|                 |             | 60–71              | 180,180  | 3,502        | 183,682|
|                 |             | 72–83              | 143,269  | 2,964        | 146,233|
|                 |             | 84–95              | 106,523  | 2,172        | 108,695|
|                 |             | 96–107             | 77,334   | 1,585        | 78,919 |
|                 |             | 108–119            | 56,115   | 1,128        | 57,243 |
|                 |             | 120–131            | 40,671   | 695          | 41,366 |
|                 |             | 132–143            | 29,925   | 475          | 30,400 |
|                 |             | 144–155            | 23,127   | 327          | 23,454 |
|                 |             | > 155              | 69,134   | 598          | 69,732 |
|                 |             | Unknown             | 4,804    | 194          | 5,698 |
|                 |             | Total               | 952,116  | 17,734       | 969,850|

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### 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) | EU AT | BE | BG | CY | CZ | DE | DK | EE | EL | ES | FI | FR | HR | HU | IE | IT | LT | LU | LV | MT | NL | PL | PT | RO | SE | SI | SK | UK | Total |
|-------------------|--------------|--------------------|-------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|
|                   |              | < 24               | 5     | 0  | 0  | 0  | 0  | 4  | 0  | 0  | 0  | 12 | 1  | 0  | 675 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 757|
|                   |              | 24–29              | 10    | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 258 | 1  | 0  | 30  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 326|
|                   |              | 30–35              | 17    | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 47  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 18,916|
|                   |              | 36–47              | 22    | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 72  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 22,841|
|                   |              | 48–59              | 10    | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 11  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 20,138|
|                   |              | 60–71              | 13    | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 9  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 18,543|
|                   |              | 72–83              | 18    | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 16  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 18,354|
|                   |              | 84–95              | 17    | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 16  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 17,351|
|                   |              | 96–107             | 9      | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 15  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 14,962|
|                   |              | 108–119            | 5      | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 6  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 12,557|
|                   |              | 120–131            | 1      | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 5  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 11,974|
|                   |              | 132–143            | 3      | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 4  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 11,924|
|                   |              | 144–155            | 4      | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 3  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 11,313|
|                   |              | > 155              | 2      | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 52,884|
|                   |              | Unknown             | 8      | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 126,300|
|                   |              | Total               | 0      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 359,140|

- **EU** represents the European Union countries.
- **non-MS** refers to non-Member States.
- **Total** indicates the grand total of healthy slaughtered bovine animals tested by age group.
| EU/non-MSs group | Country code | Age group (months) | Total non-MSs | Unknown |
|------------------|--------------|--------------------|---------------|---------|
| non-MSs          |              | < 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 | Non-MSs |
| CH               |              | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0      | 242     | 107     | 0      | 0      | 0     | 0 |
| IS               |              | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 242   | 107   | 0      | 0      | 1      | 0      | 0      | 0     | 409  |
| NO               |              | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0     | 409  |
| Total            |              | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 242   | 107   | 0      | 0      | 1      | 0      | 0      | 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-MS group | Country code | Age group (months) | < 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             | AT          |                    | 0    | 2     | 1     | 4     | 2     | 3     | 3     | 0     | 1     | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 17     |
|                | BE          |                    | 0    | 2     | 0     | 4     | 1     | 1     | 1     | 0     | 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      | 0      |
|                | CY          |                    | 0    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
|                | CZ          |                    | 0    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 2      |
|                | DE          |                    | 2    | 0     | 0     | 2     | 123   | 94    | 64    | 41    | 38    | 27     | 16     | 9      | 8      | 2      | 6      | 4      | 453     |
|                | DK          |                    | 0    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      |
|                | EE          |                    | 0    | 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      | 0      | 6      |
|                | ES          |                    | 2    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
|                | FI          |                    | 0    | 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      | 0      | 4      |
|                | HR          |                    | 2    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
|                | HU          |                    | 2    | 2     | 1     | 0     | 1     | 2     | 0     | 1     | 2     | 2      | 1      | 0      | 1      | 3      | 0      | 16     |
|                | 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     | 0     | 0     | 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      | 0      |
|                | LU          |                    | 0    | 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      | 0      | 1      | 1      |
|                | MT          |                    | 0    | 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      | 0      | 2      |
|                | PL          |                    | 0    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 13     |
|                | PT          |                    | 0    | 1     | 0     | 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      | 2      | 2      | 0      | 2      |
|                | SI          |                    | 7    | 1     | 1     | 0     | 2     | 1     | 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      | 0      |
|                | UK          |                    | 0    | 0     | 0     | 2     | 0     | 0     | 0     | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      |
|                |             | 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           |              | 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) | Number of tested bovine animals at risk | Proportion (%) of tested bovine animals at risk |
|------------------|--------------|-------------------------|-----------------------------------------|-----------------------------------------------|
| **EU**           | 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           | 385,800                 | 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**      | 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                                  | 1.5%                                          |
| **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      | 0     |
| 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
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.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.
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    | Unknown  |             |
| BG      | Not reported | 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 | 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 | 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 | 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       | 0          |
| NO      | 11,843    | 6,766      | 0       | 0          | 300       | 0          | 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.