Attualità delle EST animali: tematiche affrontate in EFSA

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scaletta

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- Il TSE European Summary Report 2020 appena pubblicato
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I pareri pubblicati scientifici pubblicati nel biennio 2020-2021

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- Atypical scrapie (2021)

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- Collage & Gelatine BSE risk (2020)
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- Atypical scrapie (2

EFSA Journal

SCIENTIFIC OPINION

ADOPTED: 22 September 2020
doi: 10.2903/j.efsa.2020.6267

Potential BSE risk posed by the use of ruminant collagen and gelatine in feed for non-ruminant farmed animals

Collage & Gelatine BSE risk (2020): Background

PAP and constituents of animal origin	Ruminants	Unweaned ruminants	Non ruminants	Aquaculture	Pets and fur animals
Ruminant PAP (ruminant blood included	UA	UA	UA	UA	A
Non-ruminant PAP	UA	UA	UA	A	A
Non-ruminant blood meal	UA	UA	UA	A	A
Insect PAP	UA	UA	UA	A	
Fishmeal	UA	A	A	A	A
Ruminant collagen and gelatine	UA	UA	UA	UA	A
Non-ruminant collagen and gelatine	A	A	A	A	A
Ruminant blood products	UA	UA	UA	UA	A
Non-ruminant blood products	UA	UA	A	A	A
Hydrolysed proteins from ruminants other than those derived from hides and skins	UA	UA	UA	UA	A
Hydrolysed proteins from non-ruminants	A	A	A	A	A
Hydrolysed proteins from ruminants derived from hides and skins	A	A	A	A	A
Di and tricalcium phosphate of animal origin	UA	UA	A	A	A
Milk and milk products	A	A	A	A	A
Colostrum and derivates	A	A	A	A	A
Eggs and egg products	A	A	A	A	A

UA: unauthorised; A: authorised.

Collage & Gelatine BSE risk (2020): ToR

ToR1

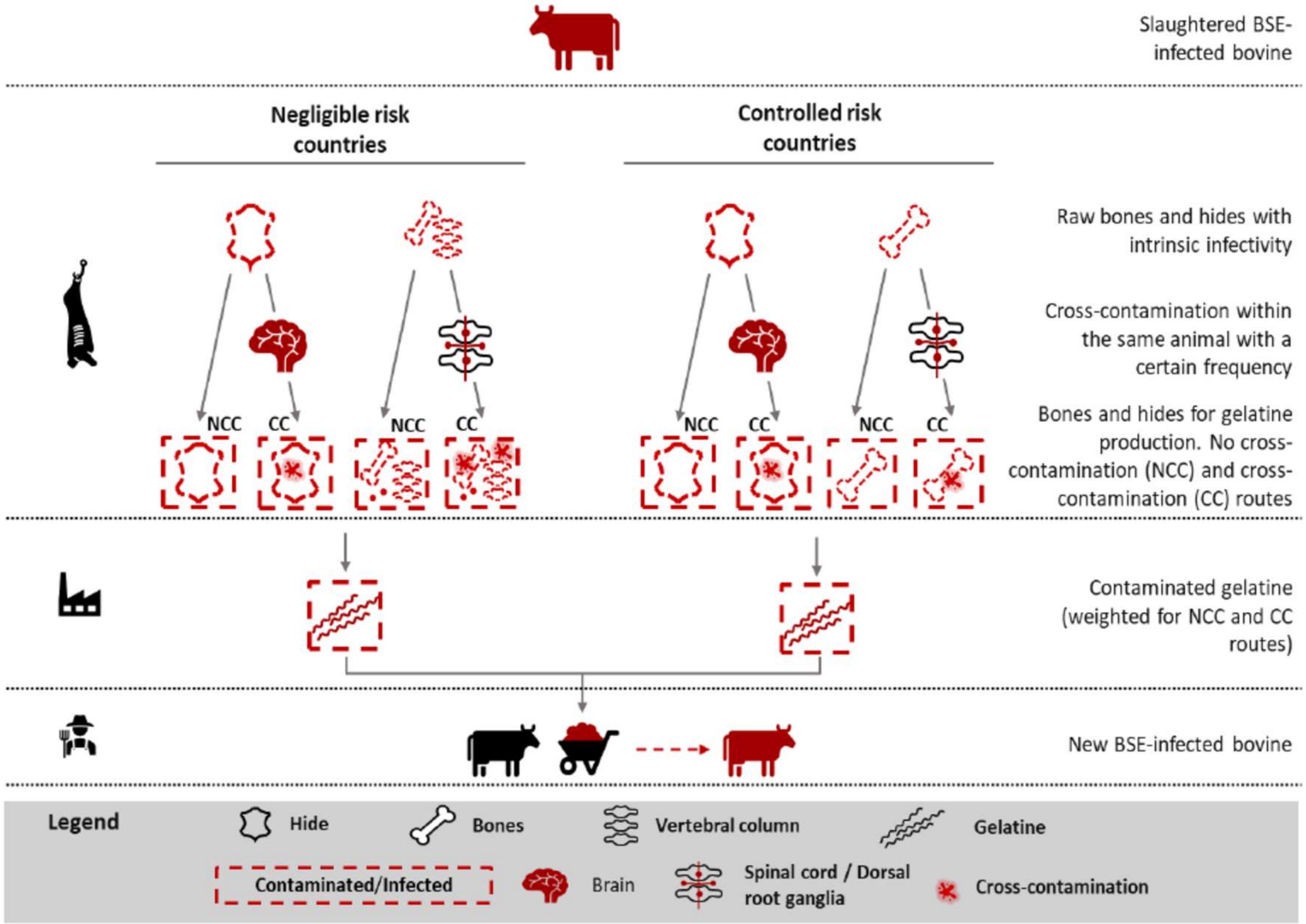
To estimate the **cattle BSE risk** (C-, L- and H-BSE) posed by the use of ruminant collagen/gelatine produced in accordance with Section XIV and XV of Annex III to Regulation (EC) No 853/2004 (**FOOD**) in **feed intended for non-ruminant animals** including aquaculture animals

ToR2

To estimate the **cattle BSE risk** (C-, L- and H-BSE) posed by the use of ruminant collagen/gelatine classified as Category 3 **(ABP)** as referred to in Article 10 of Regulation (EC) No 1069/2009 and produced in accordance with Regulation (EU) No 142/2011 for **feed intended for non-ruminant animals** including aquaculture animals.

Collage & Gelatine BSE risk (2020): approccio

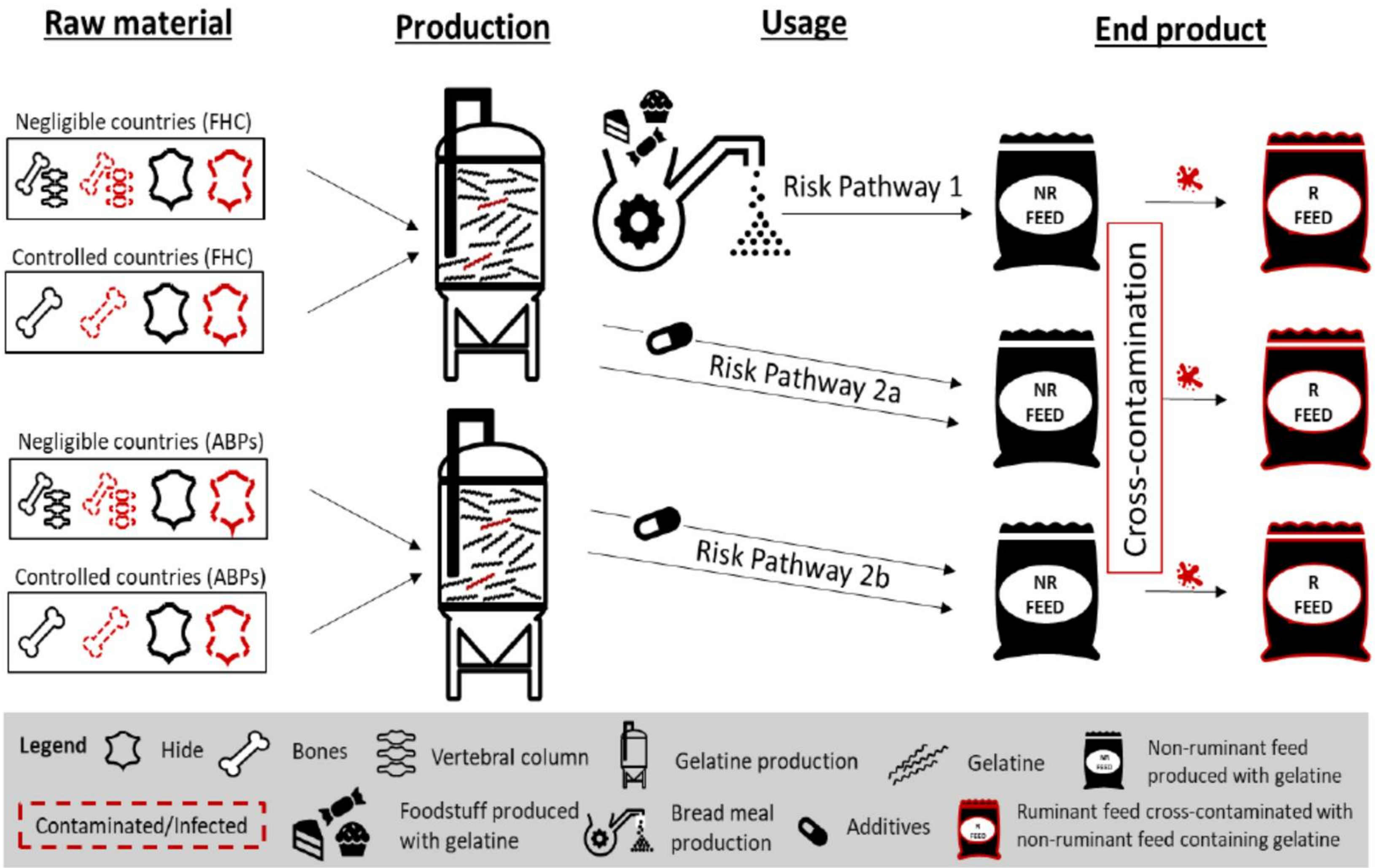
Modello



Collage & Gelatine BSE risk (2020): approccio

Risk pathways

1) recycled former foodstuffs
2) technological or nutritional additives or
3) compound feed



Collage & Gelatine BSE risk (2020): Conclusioni

- There is **no evidence of difference** in BSE risk between food grade C&G and ABP C&G
- Qualitative RA of the three RP multiple events. Lack of data
- One infected animal in a batch of gelatine: residual infectivity per kg of gelatine **extremely low**
- If collagen made with hides only: **lower infectivity**
- **Additional dilution effect** of any residual infectivity from C&G included into non ruminant feed through potential cross contamination of ruminant feed
- Temporal and geographical distribution of the exposure to the entire amount of infected material, and the individual host response to exposure

Collage & Gelatine BSE risk (2020): Conclusioni

- The probability that **no new case of BSE** in the cattle population would be generated through any of **the three RP is larger than 99 % (almost certain),** given the estimated amount of BSE infectivity to which cattle would be exposed

- This conclusion remains **valid, even if all the estimated undetected BSE cases in the EU in a single year** (50th percentile: 11.4) were **used** for the production of collagen or gelatine, either using raw materials fit for human consumption or Category 3 ABP raw materials

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Evaluation ABP applications (2) (2020 & 2021)

Alternative method for production of biodiesel from processed fats derived from Cat. 1, 2 and 3 ABP
College Proteins. Ireland

Alternative biodiesel process for rendered fat of Category 1 (BDI-RepCat Process)
BDI Bioenergy International. Austria

Standard processing method: Processing method 1 (pressure sterilization) **133 °C, 3 bar, 20 minutes**

- Pre-Cleaning
- Acidic esterification and transesterification with methanol: 140°C, 5.5 bar >4 h
- Distillation: 220°C 35 mbar

- Esterification and transesterification with methanol: >200°C, >70bar, >15min
- Distillation: 150° 10mbar

Evaluation ABP applications (2) (2020 & 2021)

Approccio EFSA:

- Per essere considerato almeno equivalente ai metodi di trattamento previsti dalla legislazione, un metodo alternativo di trattamento dei sottoprodotti di categoria 1 deve determinare una riduzione dell'infettività da prioni pari almeno a 6 log.
- Questa va ad aggiungersi alla riduzione di almeno 3 log che è ottenuta con il metodo di sterilizzazione a pressione (metodo 1) applicato prima del metodo alternativo.

Evaluation ABP applications (2) (2020 & 2021)

Evidence: 2 studies commissioned

- The prion reduction combined: at least 4.3 $\log_{10}$.
- 263K hamster strain spike,
- WB detection of the residual PrP^{Sc} signal.

Evidence: study commissioned and published (Mohammadi et al., 2020)

- The prion reduction in conversion: at least 6 $\log_{10}$
- sCJD and RML strains spike
- WB detection of the residual PrP^{Sc} signal.

Distillation: at least an additional 3 $\log_{10}$ reduction

I pareri pubblicati scientifici pubblicati nel biennio 2020-2021

EFSA Journal

SCIENTIFIC REPORT

APPROVED: 14 June 2021
doi: 10.2903/j.efsa.2021.6686

Scientific report on the analysis of the 2-year compulsory intensified monitoring of atypical scrapie

European Food Safety Authority (EFSA),
Mark Arnold, Giuseppe Ru, Marion Simmons, Alberto Vidal-Diez, Angel Ortiz-Pelaez and Pietro Stella

Finished:

- Collage & Gelatin ... risk (2020)
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Atypical scrapie (AS)

Nell'Opinion del 2014, l'EFSA concludeva: "la scrapie atipica non si presenta, dal punto di vista epidemiologico, come una malattia infettiva. Questo è stato interpretato come prova che si possa trattare di una malattia spontanea dei soggetti più vecchi e non contagiosa".

ToR1

Do the scientific data on the 2-year intensified monitoring collected by the EC provide **any evidence on the contagiousness** of atypical scrapie?

ToR2

Do the scientific data on the 2-year intensified monitoring collected by the EC provide **any other new knowledge on the epidemiology** of atypical scrapie?

Atypical scrapie : approccio

ToR1.

Studio descrittivo: dati di sorveglianza 2013 2019

- **Confronto di prevalenza di AS nella sorveglianza attiva:**

Confronto di (P1) prevalenza in sorveglianza attiva vs. (P2) s. intensificata all’interno degli allevamenti infetti. Presupposto: se contagioso, P2 >P1

- **Modello di simulazione:**

i dati osservati sono più compatibili con un modello di trasmissione dell'AS all'interno del gregge che contempla la contagiosità?

ToR2: revisione di letteratura

Atypical scrapie : conclusioni

- Sulla base delle analisi dei dati ottenuti dal monitoraggio intensivo, e tenendo conto delle incertezze e delle limitazioni dei dati, si è concluso che:

  - ✓ **Non ci sono nuove evidenze** che la scrapie atipica possa essere trasmessa tra gli animali in condizioni naturali

  - ✓ Si considera **più probabile** (in un intervallo di probabilità soggettiva **50-66%**) che la scrapie atipica sia una malattia non contagiosa

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Il TSE European Summary Report 2020

- BSE: 4 atipici, France (1 H-BSE and 1 L-BSE), Ireland (1 H-BSE) and Spain (1 H-BSE)
- SCRAPIE: 688 casi ovine, 328 caprine; 1 caso in ARR/ARR e 1 CH1641; solo negli ovine trend di diminuzione su 10 anni (sia AS sia CS)
- CWD EU: 2 casi in alci (Finlandia e Svezia); Norvegia: 1 renna e 1 cervo


EFSA Journal

SCIENTIFIC REPORT

APPROVED: 25 October 2021

doi: 10.2903/j.efsa.2021.6934

The European Union summary report on surveillance for the presence of transmissible spongiform encephalopathies (TSE) in 2020

European Food Safety Authority (EFSA)

Abstract

This report presents the results of surveillance on transmissible spongiform encephalopathies (TSE) in cattle, sheep, goats, cervids and other species, and genotyping in sheep, carried out in 2020 by 27 Member States (MS, EU27), the United Kingdom (UK) and other seven non-EU countries: Bosnia and Herzegovina, Iceland, Montenegro, North Macedonia, Norway, Serbia and Switzerland. In total, 1,122,671 cattle were tested by EU27 and the UK (−2.4%, compared with 2019), and 51,775 cattle by the other seven non-EU, with three cases of H-BSE in France, Ireland and Spain, and two L-BSE in France and Switzerland. In total, 332,579 sheep and 120,615 goats were tested in the EU27 and the UK (−1.6% and −16%, respectively). In sheep, 688 cases of scrapie were reported by 16 MS and the UK: 589 classical scrapie (CS) by seven MS [81 index cases (IC), one of ARR/ARR genotype and 97% with genotypes of susceptible groups], 98 atypical scrapie (AS) (88 IC) by 14 MS and the UK, and one CH1641-like. In addition, Italy reported 12 inconclusive cases. In total, 26,053 sheep and 712 goats were tested in the other non-EU countries with 53 CS in Iceland and 12 AS in Norway. Random genotyping was reported by nine MS: with Cyprus excluded, 8.8% carried the genotypes of susceptible groups. In goats, 328 cases of scrapie were reported: 319 CS (52 IC) by six MS and the UK, and nine AS (9 IC) by five MS. The last of the 3-year surveillance programme for chronic wasting disease (CWD) in Estonia, Finland, Latvia, Lithuania, Poland and Sweden resulted in 6,974 tested cervids and two CWD cases in wild moose, in Finland and Sweden. Other six MS and the UK tested 2,197 cervids, all negative. Norway tested 22,528 cervids of which one wild moose and one wild reindeer were positive. In total, 101 animals from three other species tested negative in Finland.

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

Requestor: European Commission

Question number: EFSA-Q-2020-00789

Correspondence: zoonoses@efsa.europa.eu

Il TSE European Summary Report 2020

I casi di BSE sono oggi molto rari

Nessun caso di BSE classica è stato rilevato nel 2020 e solo 5 casi di BSE atipica sono stati riportati su oltre 1.100.000 test effettuati nel bestiame.

I casi di scrapie stanno diminuendo

Sono stati rilevati 1.081 casi su 450.000 test effettuati su pecore e capre. Queste cifre sono coerenti con una tendenza (10 anni) che mostra una diminuzione della prevalenza della scrapie ovina.

CWD. Pochi casi, grande attenzione

La sorveglianza messa in atto nell'UE nel 2018 ha portato alla scoperta della CWD in Finlandia e Svezia. Nel 2020, su quasi 30.000 test, sono stati rilevati 2 casi di CWD in alci in questi due paesi e 2 casi (1 alce e 1 renna) in Norvegia.


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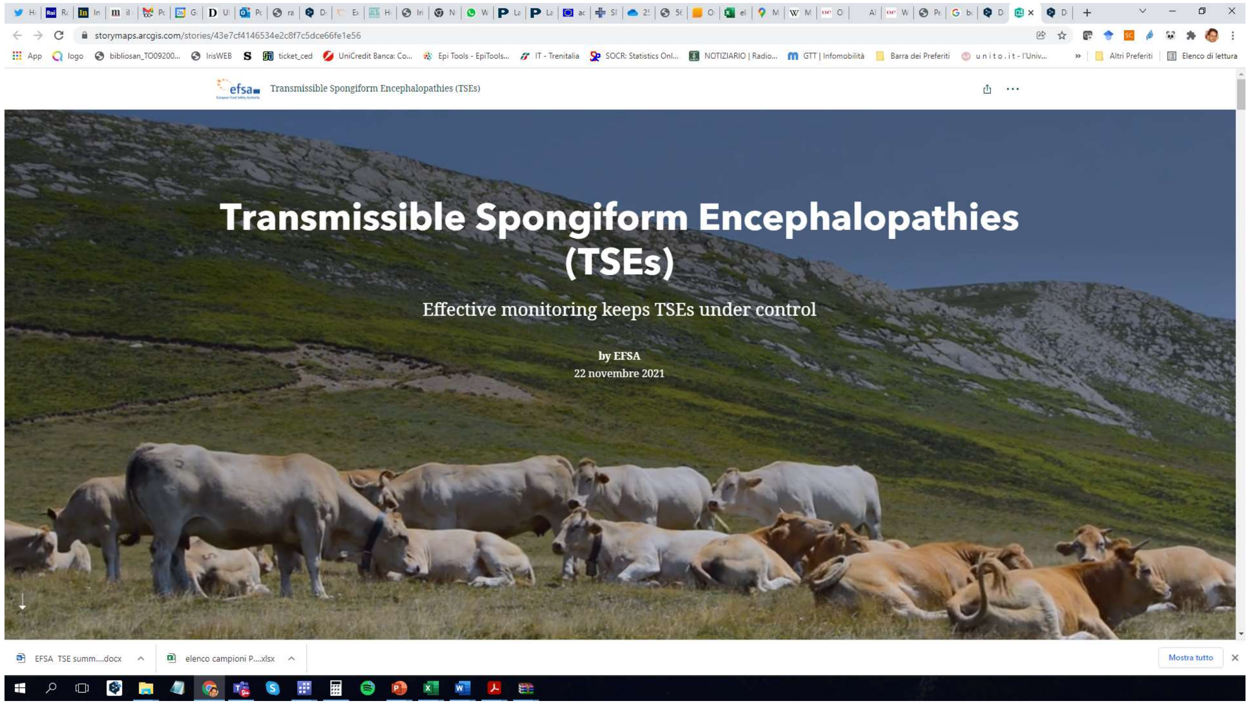
Una storymap online

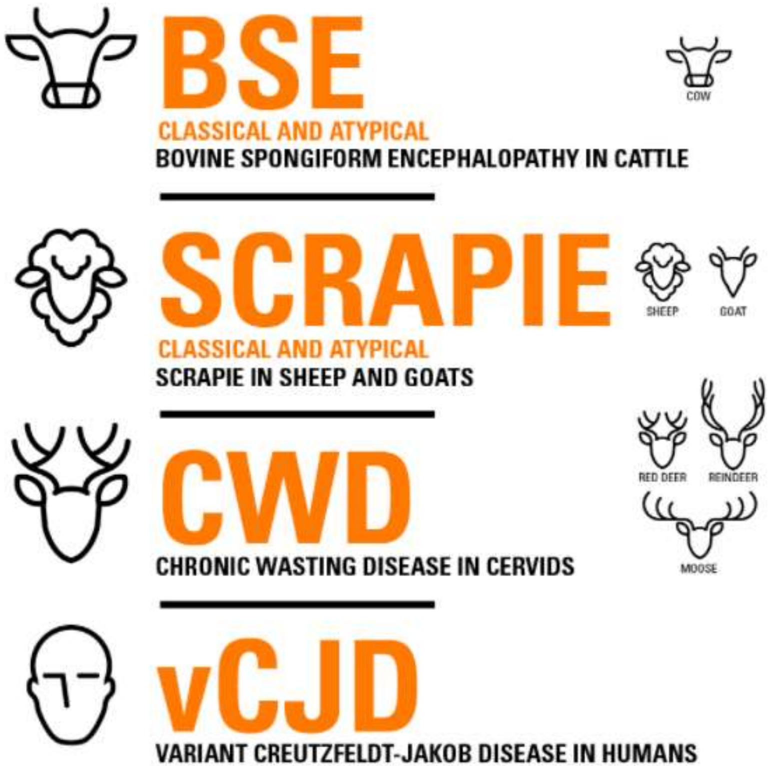
- Collegata alla pubblicazione del Report e aggiornabile di anno in anno
- Obiettivo divulgativo sulle TSE (BSE in particolare)
- Riporta i risultati principali del EUSR TSE 2020
- Link: https://storymaps.arcgis.com/stories/43e7cf4146534e2c8f7c5dce66fe1e56



What are TSEs?

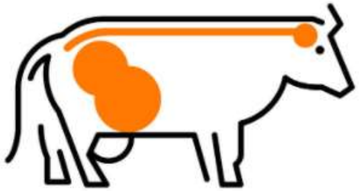
Transmissible Spongiform Encephalopathies (TSEs) are a group of fatal neurodegenerative diseases that affect humans and animals. TSEs are caused by a transmissible agent called prion, which is an abnormal form of a protein mostly found in the brain.

TSEs include:



BSE story

The first case of BSE was detected in the UK in 1986 and by the mid-Nineties the disease – commonly known as Mad Cow Disease – was considered a relevant threat for public health.



Prions pass through the digestive tract and accumulate in the central nervous system, where they damage the brain

BSE is a non-contagious disease, but its pathogenic agent, the prion, is transmissible.

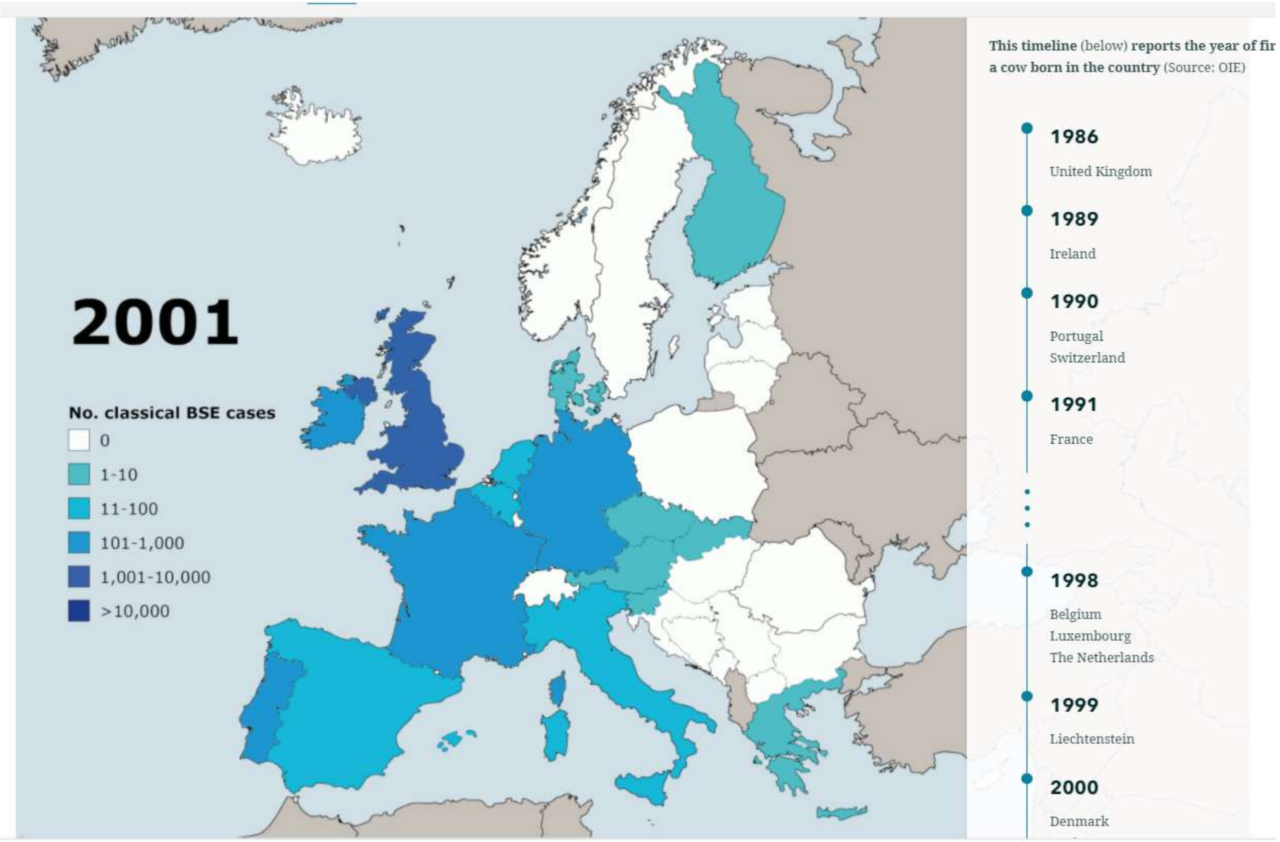
Epidemiological studies have shown that the **classical form of BSE** spreads through the consumption of contaminated feed. But, if prions accumulate only in animal tissues (see figure), and bovines are herbivores, how do cows get infected via feedstuffs?

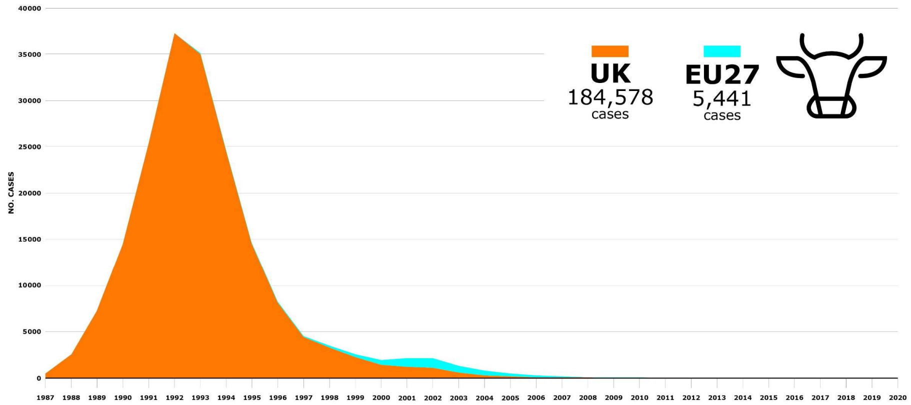
In the early XX Century, feed manufacturers began to add animal proteins to cow feed to favour milk production. It seemed rational and profitable to recycle bovine slaughterhouse waste into meat-and-bone-meal to be fed to cattle. At that time nobody was aware of the risks of this change in cow diet. Meat-and-bone-meal containing tissues of infected cows became the vehicle of transmission of the pathogenic agent to other animals.

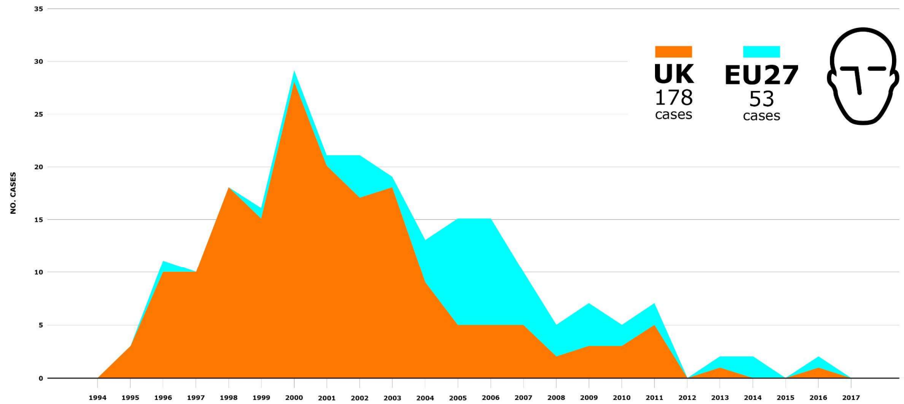
BSE prion is acquired through contaminated feed

(More information on BSE here).

The epidemic started in the UK, and within a few years classical BSE cases were detected all over Europe

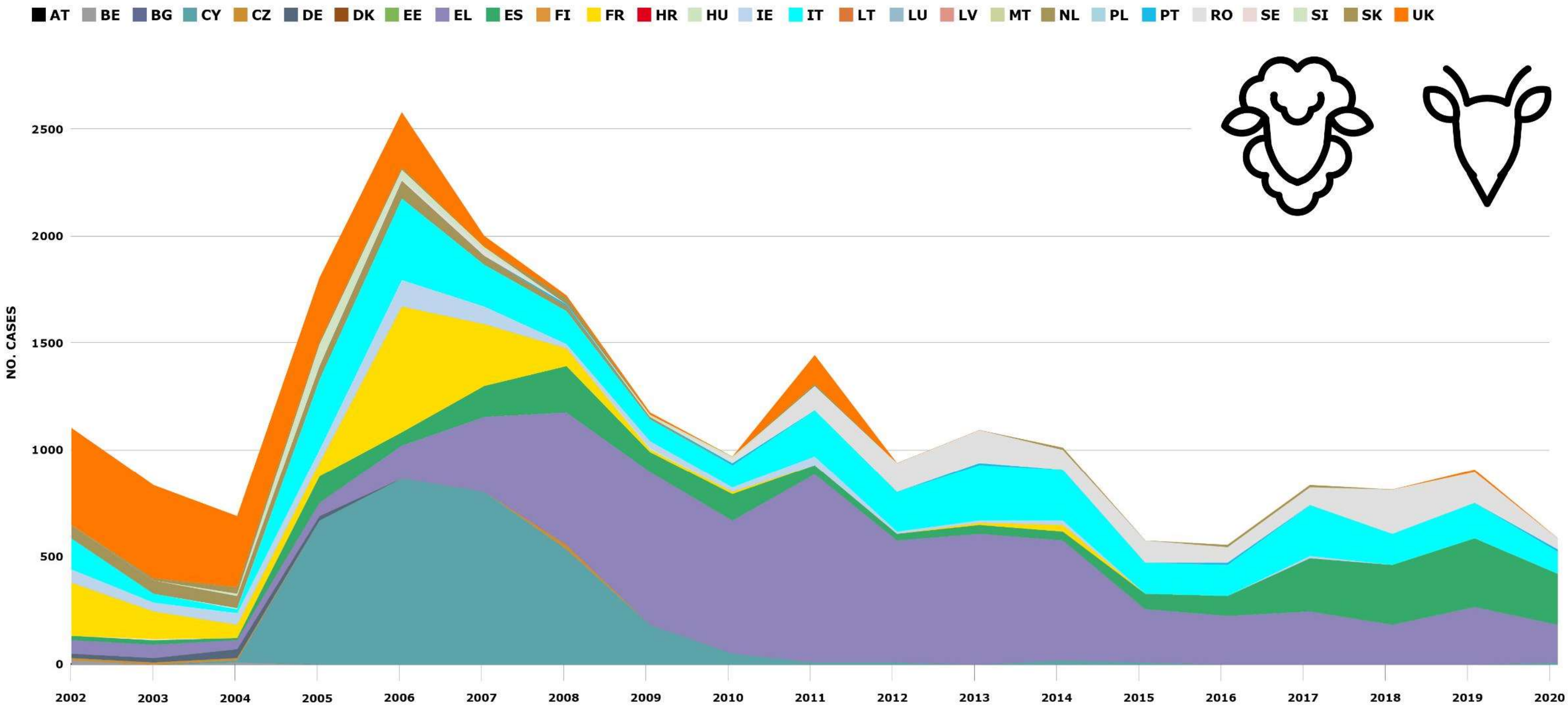

2001
No. classical BSE cases
0
1-10
11-100
101-1,000
1,001-10,000
>10,000
This timeline (below) reports the year of fir
a cow born in the country (Source: OIE)
1986
United Kingdom
1989
Ireland
1990
Portugal
Switzerland
1991
France
1998
Belgium
Luxembourg
The Netherlands
1999
Liechtenstein
2000
Denmark


UK
184,578
cases
EU27
5,441
cases
NO. CASES

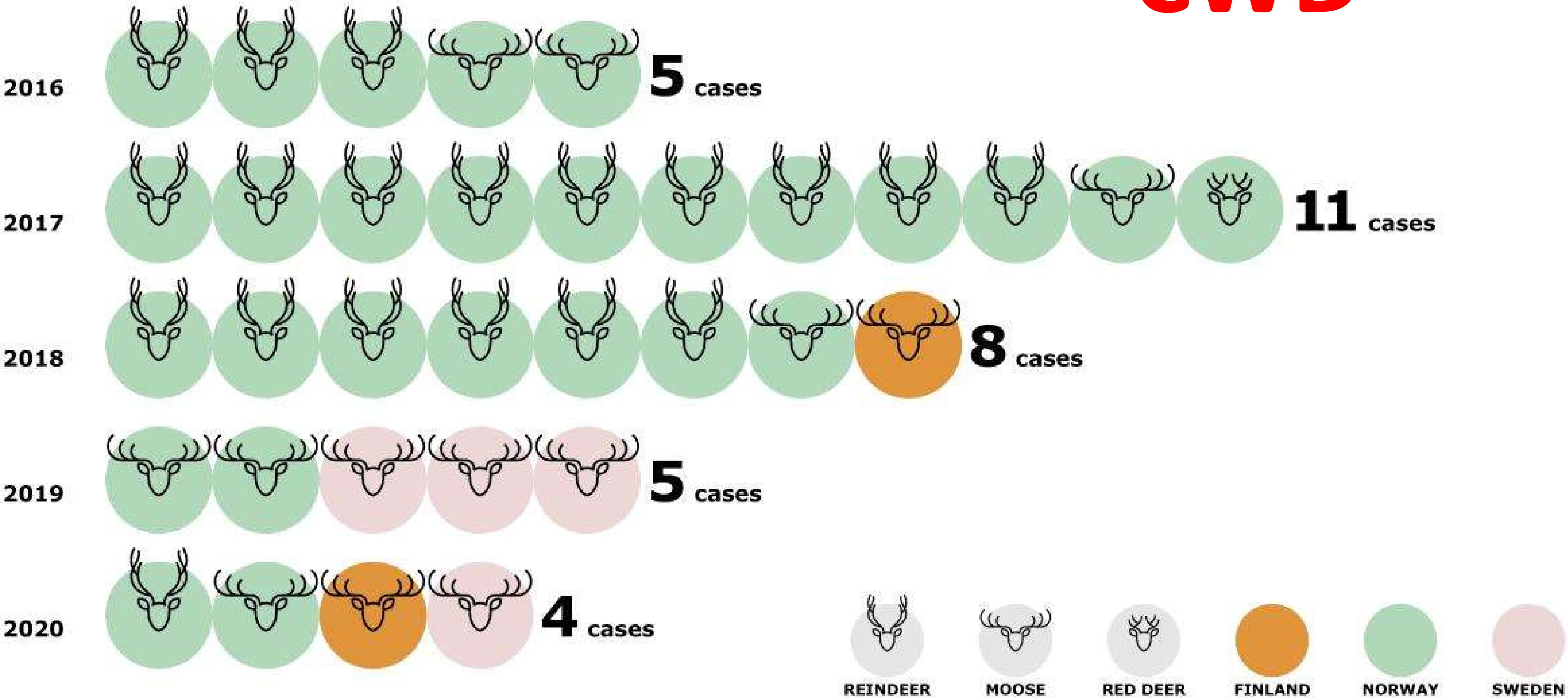

UK
178
cases
EU27
53
cases
NO. CASES

BSE & vCJD

scrapie


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
NO. CASES
2500
2000
1500
1000
500
0
2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

CWD



2016
5 cases
2017
11 cases
2018
8 cases
2019
5 cases
2020
4 cases
REINDEER
MOOSE
RED DEER
FINLAND
NORWAY
SWEDEN

Sorveglianza 2020

Un riepilogo dei casi 2020

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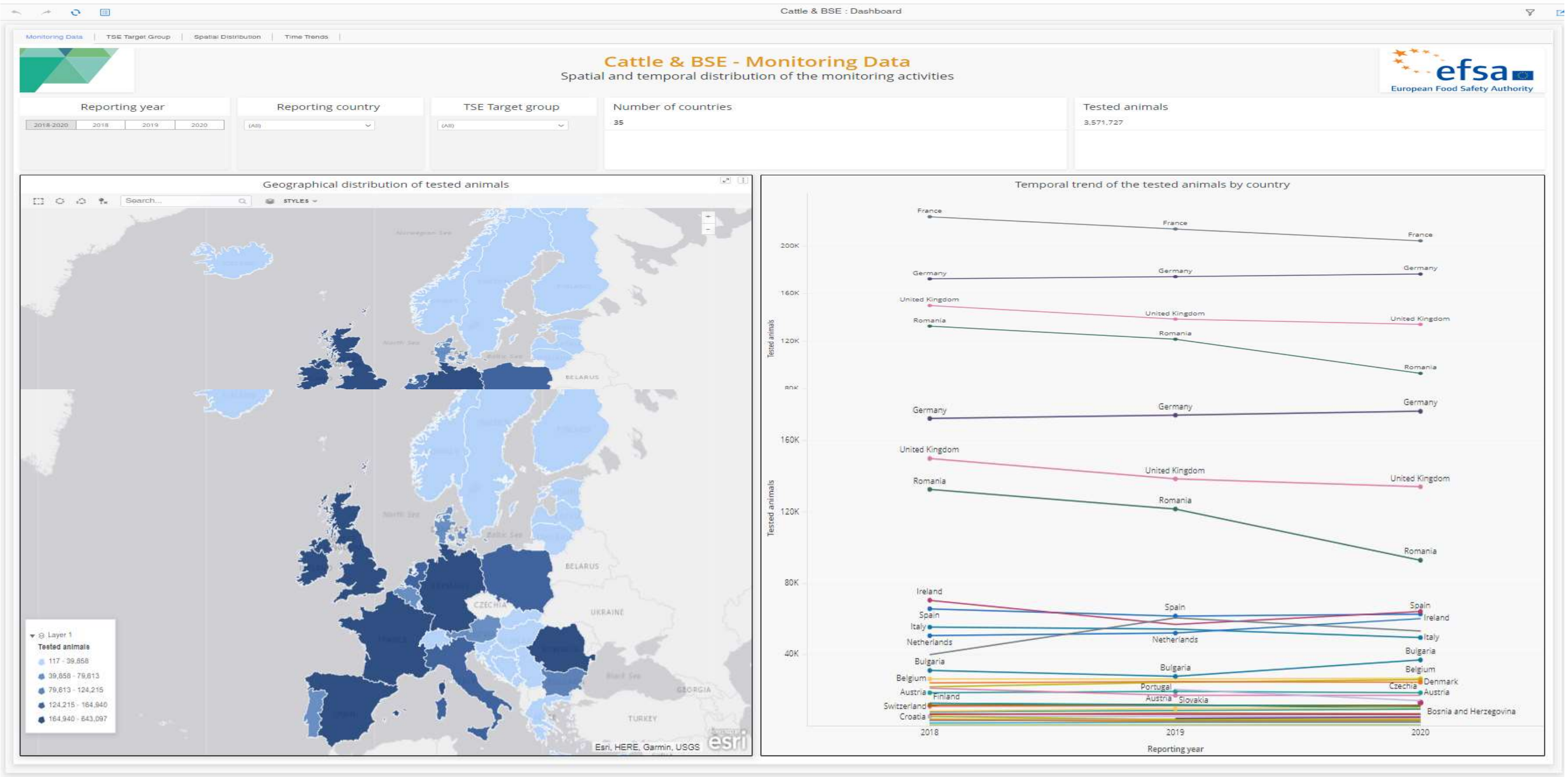
TSE dashboards: BSE/scrapie/CWD



TSE dashboards: BSE/scrapie/CWD

- **Tre cruscotti:**

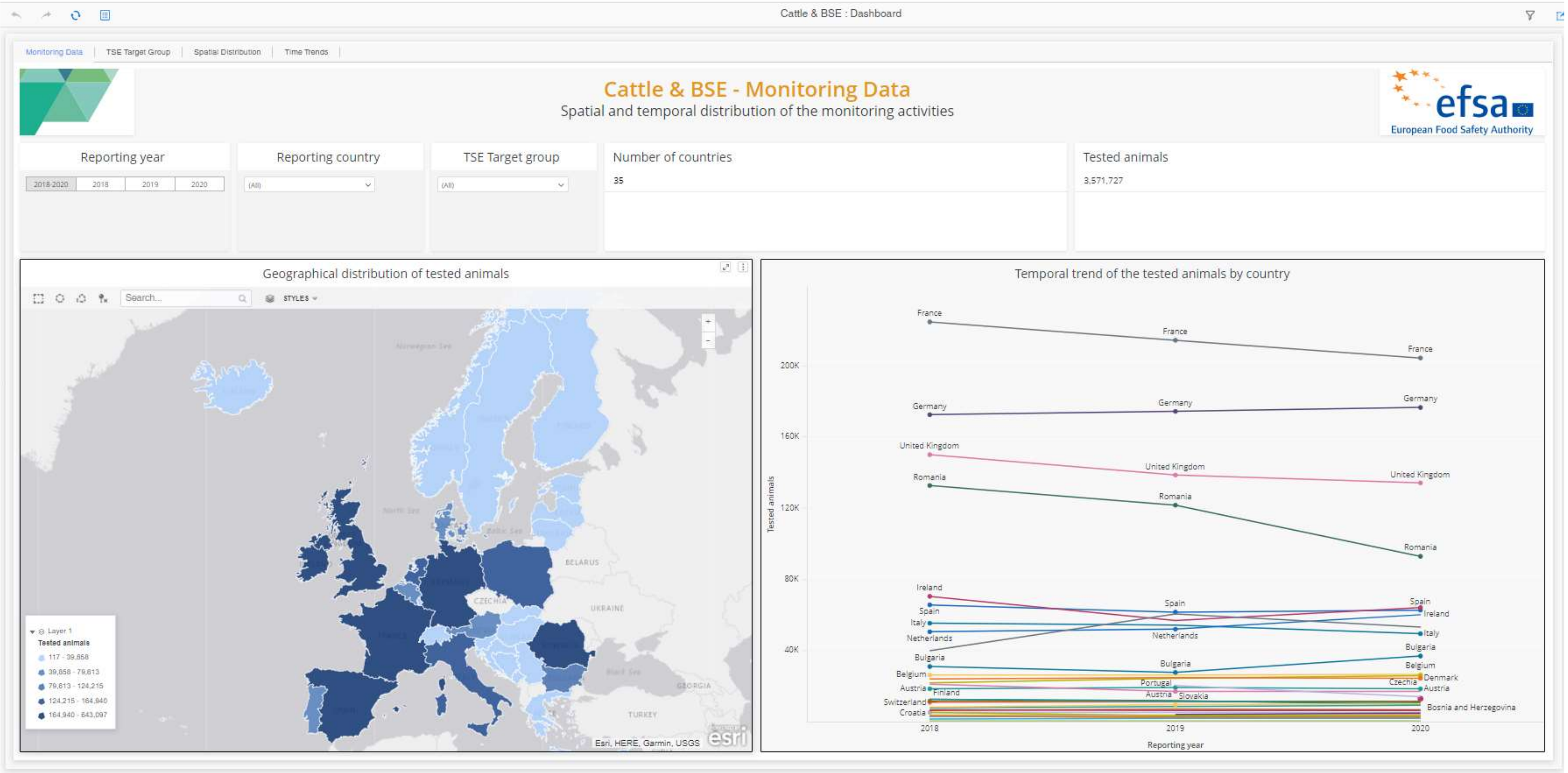
1. BSE
2. scrapie (capre vs. pecore),
3. CWD

- **Ciascun cruscotto:**

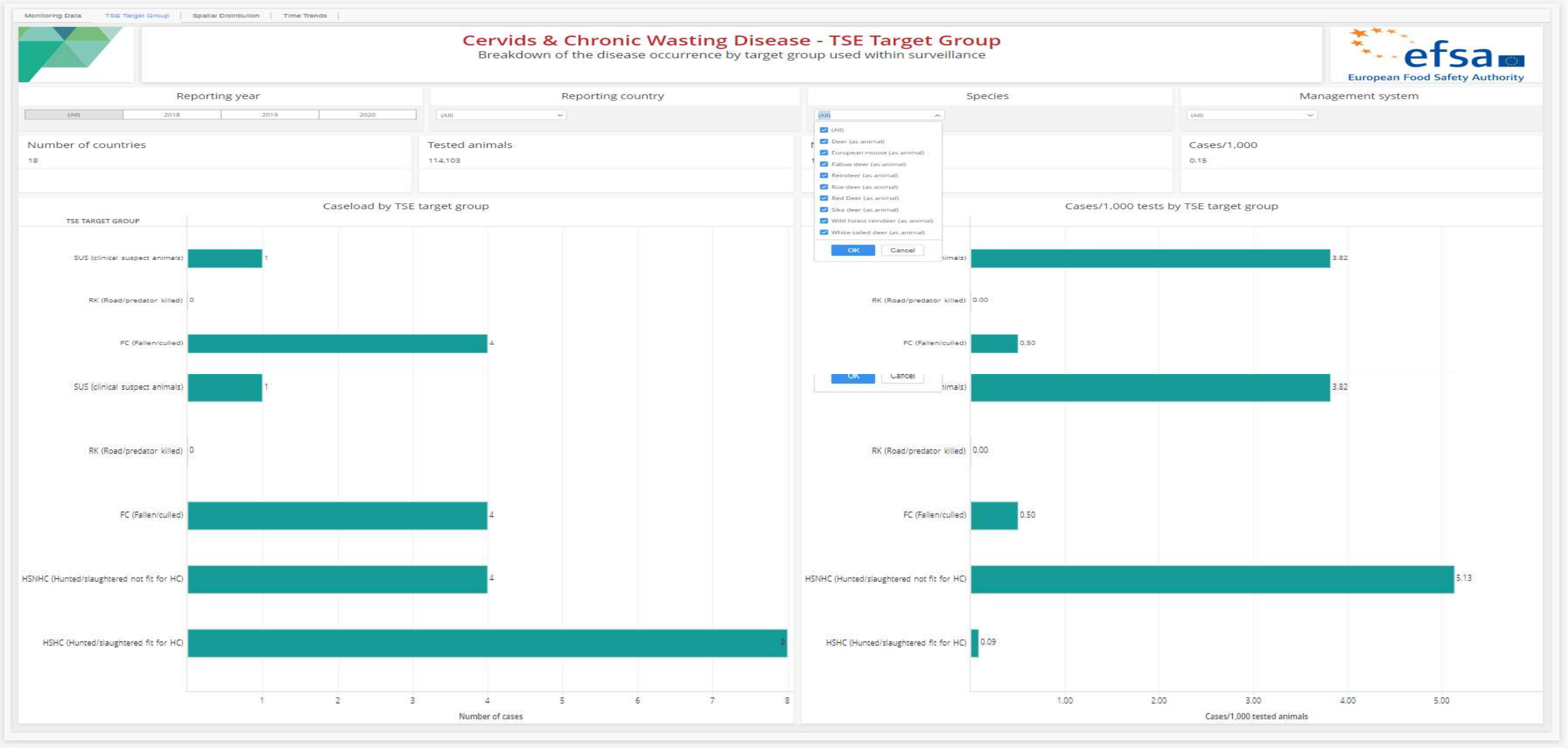
1. Sorveglianza (capi testati)
2. Casi/prev per target group
3. Casi/prev: mappe
4. Casi/prev: trend

Interrogazioni personalizzate con filtri dedicati es. per forma di malattia (-C, -H, -L oppure AS vs CS), specie, target group, flock status ecc,

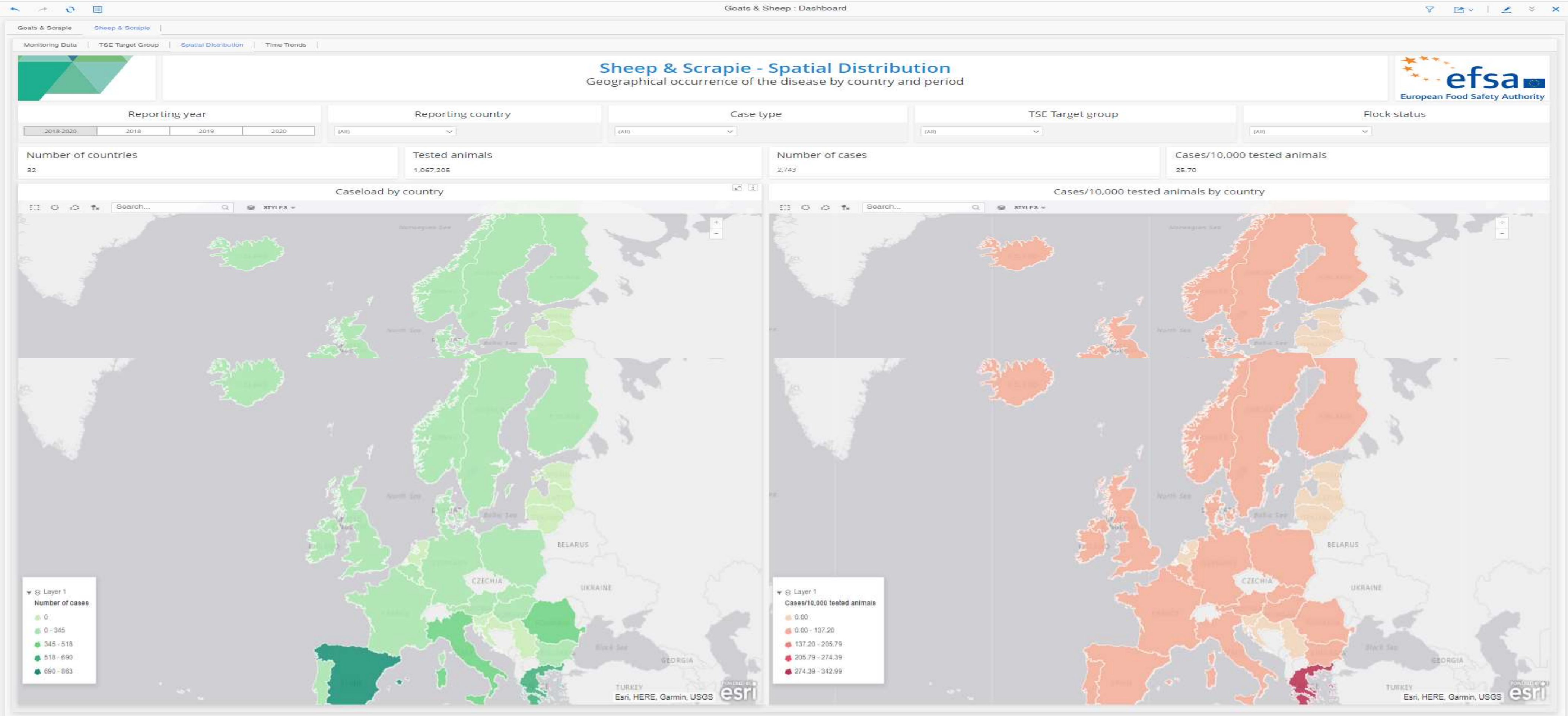
Es. sorveglianza: capi testati in spazio e tempo



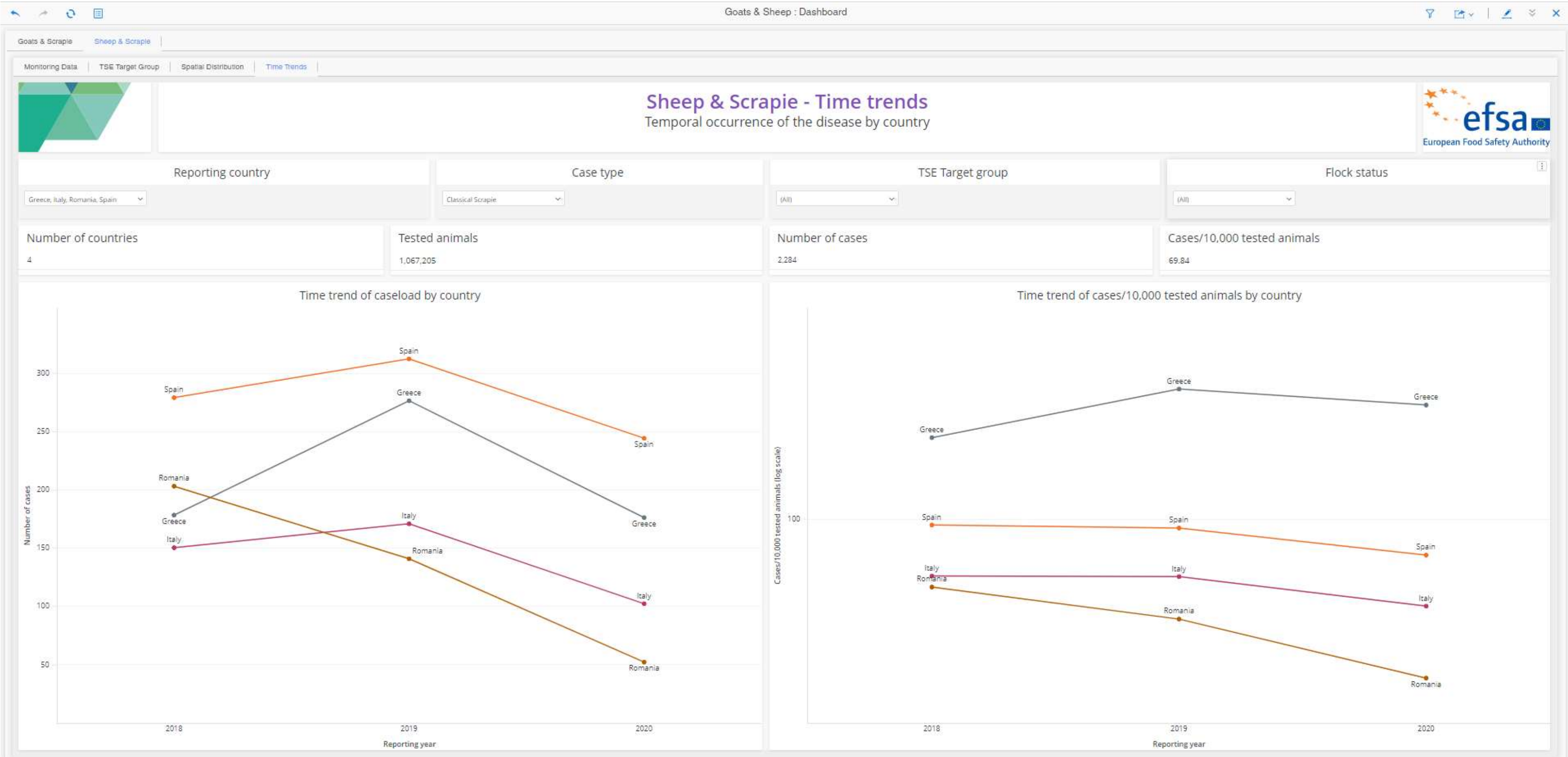
Casi/prevalenza per target group



Casi/prevalenza: mappe



Casi/prevalenza: trend



Grazie per l’attenzione!