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"Schmallenberg" virus: likely epidemiological scenarios and data collection

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Outline

1. Background
2. Terms of Reference (ToR)
3. EFSA technical report:

   "Schmallenberg" virus: likely epidemiological scenarios and data needs”
3. Data collection
4. What is next

Background

efsa
European Food Safety Authority

"Schmallenberg" virus (SBV)

- Discovered in Germany, November 2011
- Observed in ruminants
- Clinical signs:
  - Adult animals: mainly absent or mild (fever, diarrhoea, reduced milk yield, loss of appetite)
  - Foetuses and newborns: congenital malformations
- Sequencing: Simbu serogroup (Akabane virus, Shamonda virus)
- Believed to be vector-borne (midges and mosquitoes)

Terms of Reference (ToR)

1. A preliminary analysis of the likely epidemiological scenarios – **6 February**
2. An analysis of the epidemiological data already available – **31 March**, first report, followed by regular updates every two months
3. Guidance on data collection in Member States
4. A report on the overall assessment of the impact of SBV on animal health, animal production and animal welfare together with a characterisation of the pathogen – **31 May**

EFSA technical report

- Article 31 of Regulation 2002/178
- **"Schmallenberg" virus: likely epidemiological scenarios and data needs.** EFSA 2012:EN-241. [31 pp.]. Available online: www.efsa.europa.eu/publications
- EFSA staff
- External experts
- AHAW Scientific Network

Holdings with confirmed SBV early February

	NL	DE	BE	UK	FR
Cattle	3	7	4		
Sheep	85	263	75	11	50
Goat	5	10	1		
Locations	All provinces except for province of Utrecht	North Rhine-Westphalia, Lower Saxony, Schleswig-Holstein, Rhineland-Palatinate Baden-Wuerttemberg, Brandenburg, Thuringia, Saxony-Anhalt, Hamburg, Bavaria	Most provinces with a greater density in north west Belgium	Norfolk, Suffolk, East Sussex, Essex and Kent	North of France: Aisne, Aube, Calvados, Haute-Marne, Meurthe-et-Moselle, Meuse, Moselle, Nord, Oise, Pas-de-Calais, Bas-Rhin, Seine-Maritime, Somme, Vosges

NL, DE, FR as of 3 Feb, UK as of 31 Jan, BE as of 1 Jan

SBV unknowns and working assumptions

- SBV infection is responsible for the clinical syndromes reported
- SBV is similar to Akabane virus and induces strong immunity in infected animals.
- SBV is like other Simbu serogroup virus a vector-borne infection

Possible detection of cases of AHS

Animal species	Infection April 2011	Infection August 2011	Infection October 2011
Lambs	August 2011	December 2011	February 2012
Calves	November 2011	March 2012	May 2012
Goat kids	August 2011	December 2011	February 2012

Considering an average gestation period of 150 days in sheep and goats and 280 days in cows

It could be expected that the majority of the deformed lambs would be born from December to February and the majority of deformed calves after March

Likely epidemiological scenarios

A: Areas where a recent incursion might have occurred in a **naïve population** causing clinical disease in adult animals and malformation in lambs and calves.

B: Areas where incursion occurred in the past and part of the ruminant **population is immune** and where congenital malformations are not observed or observed at a low level (mainly not reported).

C: Areas where no virus incursion has occurred and a **susceptible population** is present.

Hypothetical SBV spread

The modeling of the **hypothetical SBV spread** was done under the assumptions that:

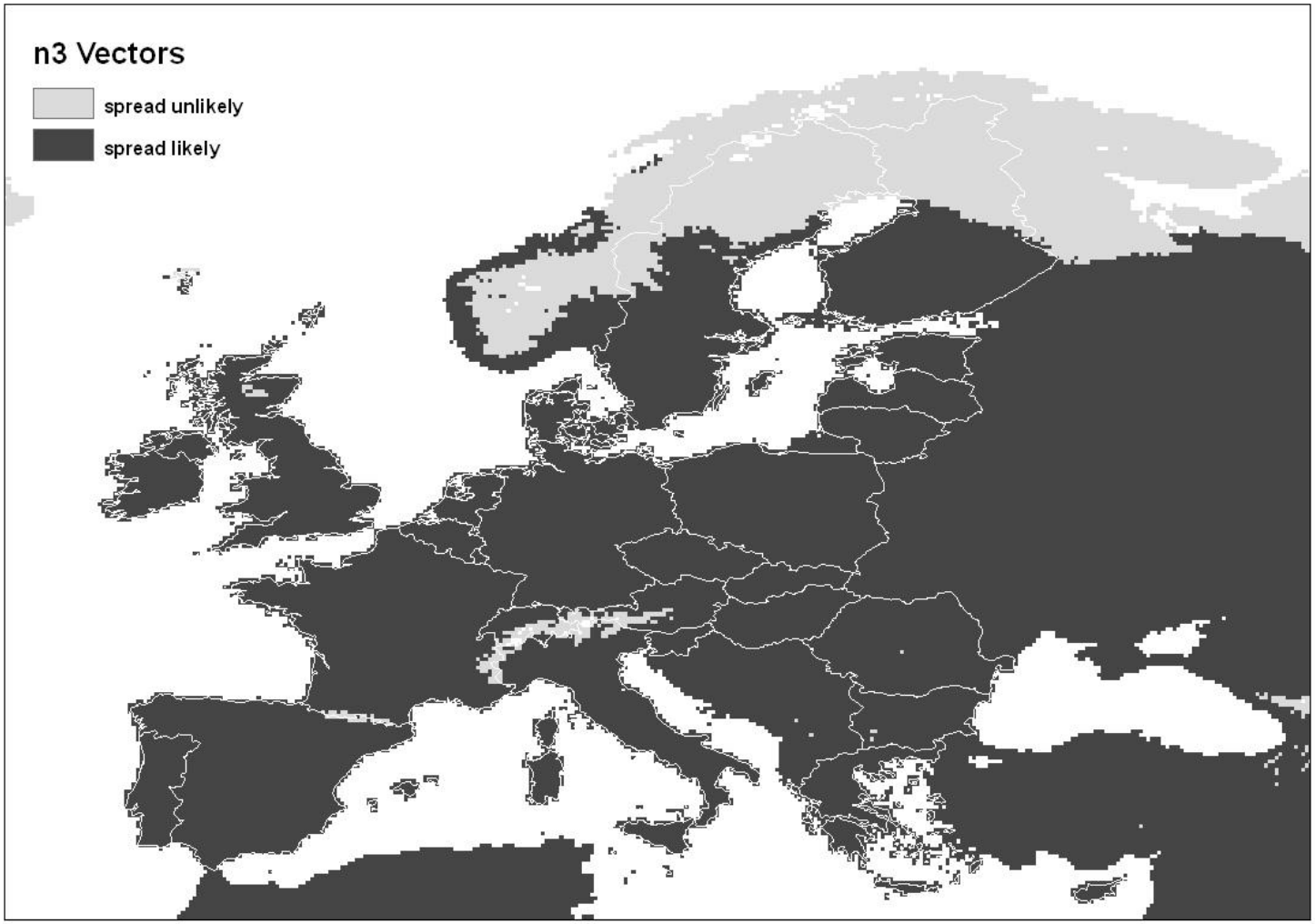
- The EU ruminant population is susceptible (**scenario C** - no surveillance data available of immune status in MS)
- SBV infection is assumed to be exclusively vector-borne and the transmission is similar to that of bluetongue serotype 8 (BTV8)
- Vectors are evenly distributed over the whole of Europe

Rationale to use of BTV8 information

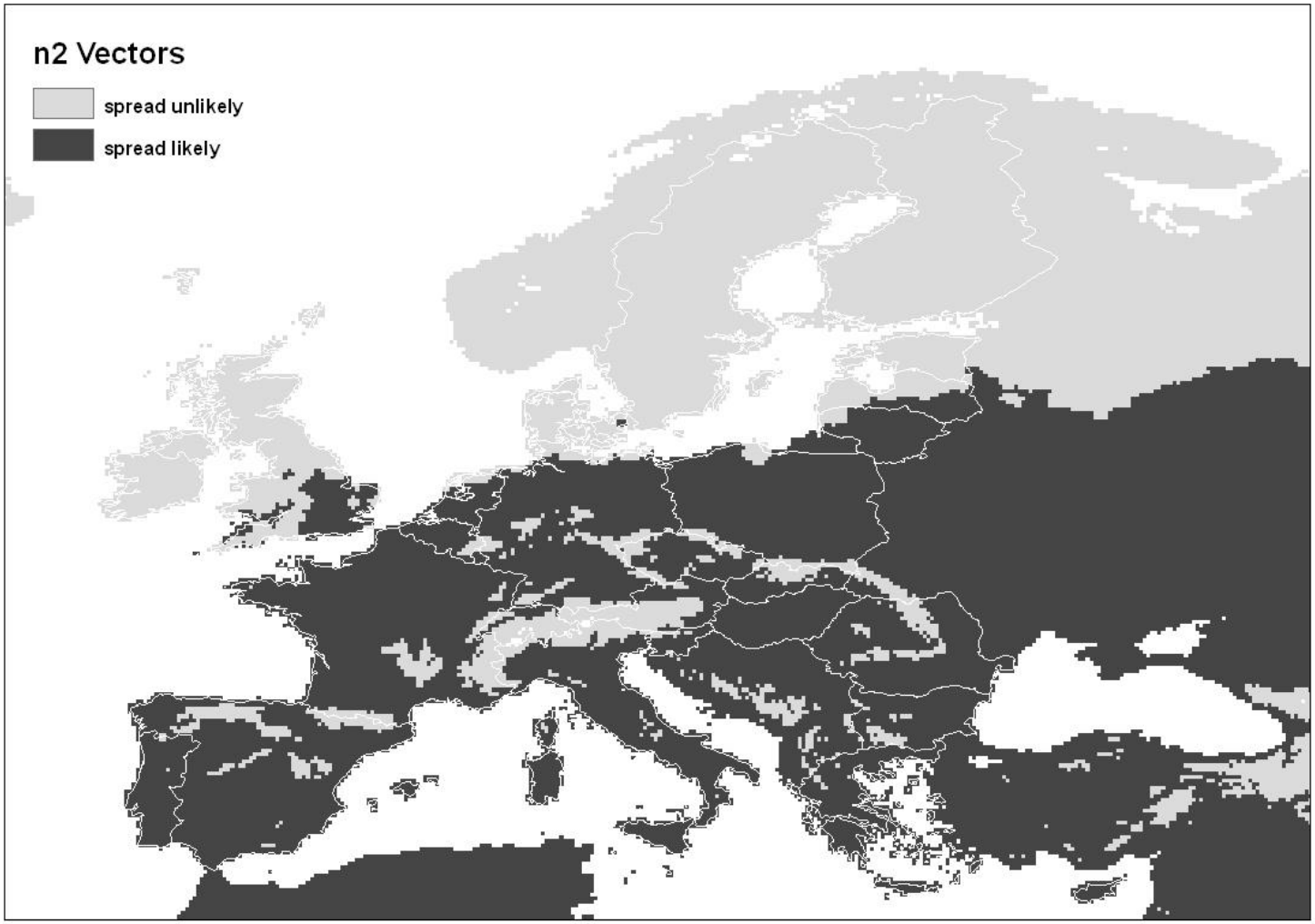
- BTV8 is primarily a vector-borne disease as are other viruses from the Simbu serogroup
- BTV8 and SBV are circulating in the ruminant population
- Information is available regarding BTV8 in Europe whereas there has only been one case report for viruses of the Simbu serogroup in Europe.

Scenario C.1 - spread of SBV, n1 vectors per host, average temp in May, 6 days viraemia

Scenario C.2 - spread of SBV, n3 vectors per host, average temp in May, 6 days viraemia



Scenario C.3 - spread of SBV, n2 vectors per host, average temp in May, 6 days viraemia

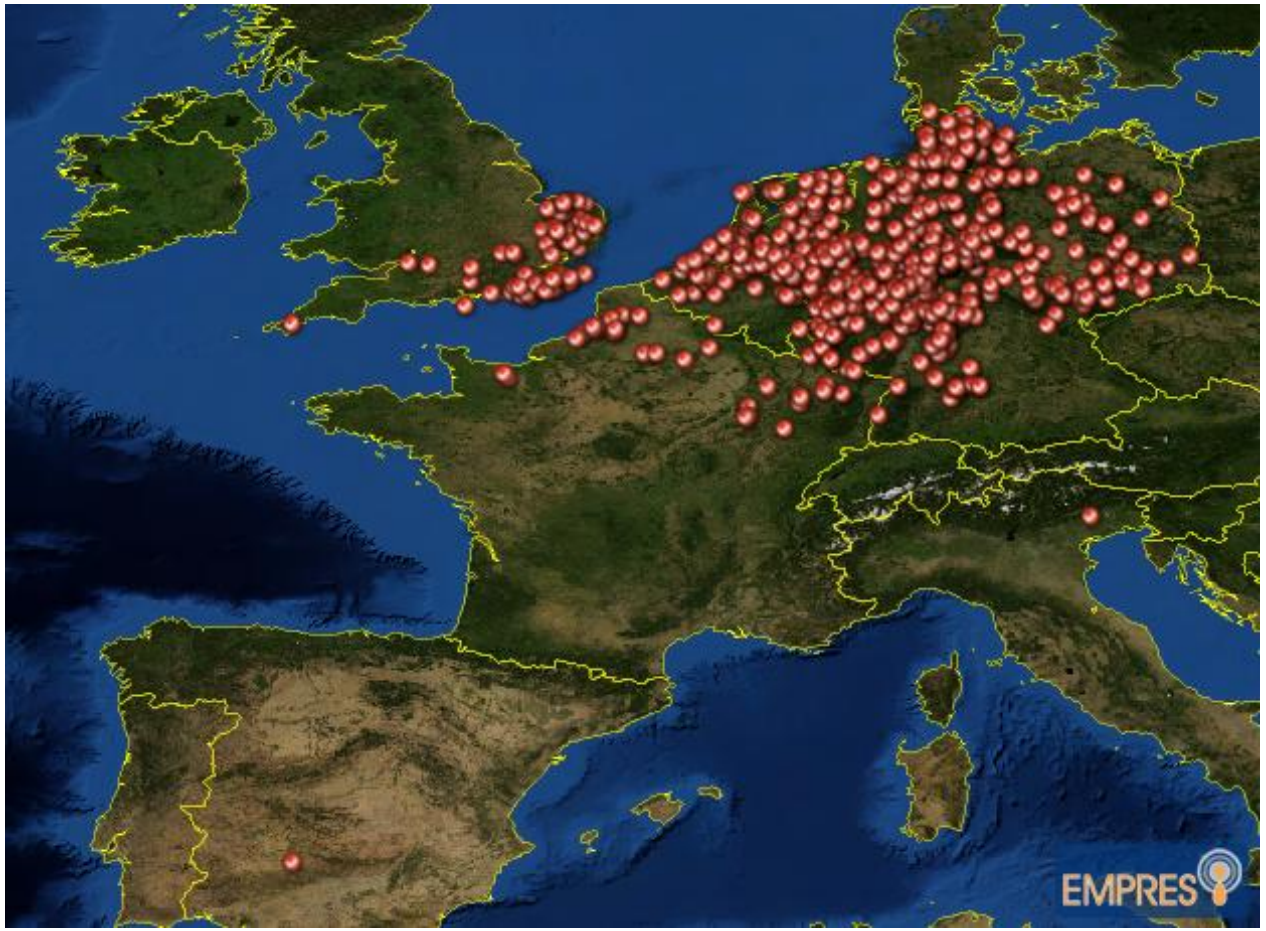


Holdings with confirmed SBV – March 2012

COUNTRY	CONFIRMED CASES (HOLDINGS)				
	Cattle	Sheep	Goat	Sheep/Goat	Total
Belgium	96	157	2		255
Germany	160	799	41		1000
France	53	761	8	2	824
Italy			1		1
Luxembourg	1	5		1	7
Netherlands	84	103	5		192
Spain				1	1
UK	12	164	0		176

FR, It and UK as of 16 Mar, SP as of 13 Mar BE, DE, NL as of 19 Mar, LU as of 7 Mar

Holdings with confirmed SBV – March 2012



Map based on FAO-EMPRES data, 14 March 2012

Preliminary results

- Prevalence study NL (Viral neutralization test)

A: Seroprevalence in Dutch cattle

B: Within herd prevalence in cattle and sheep herds (PCR pos)

- Seroprevalence of antibodies to SBV in dairy cattle population in the Netherlands: **±70%**
- Sheep flocks: **70 –95%** Dairy herds: **70 –100%**

Data collection

Objectives

Epidemiological updates published by EFSA every two months:

- Spread of SBV in Europe (temporal and spatial)
- Impact (prevalence, observed birth outcomes)

Approach

- Harmonised case definitions across EU Member States (MS)
- MS reporting officers
- MS submit collected SBV data every two weeks
- Two data sets: herd/flock level and animal level

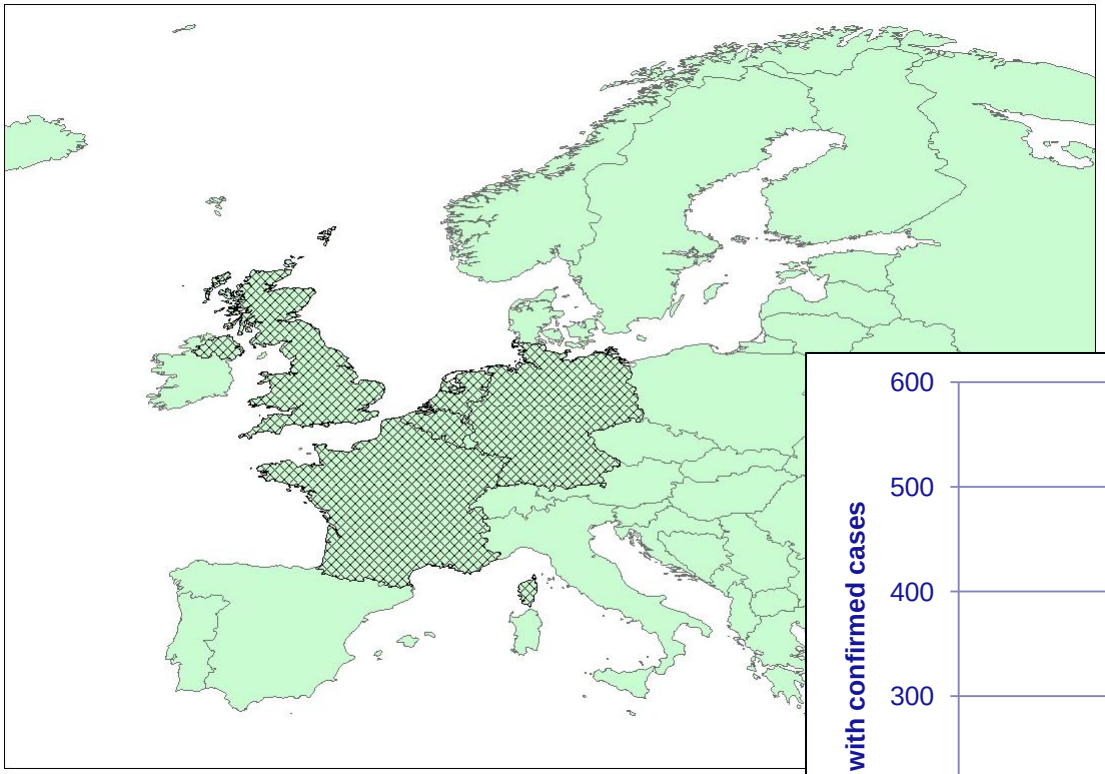
Data collection

Unique herd identifier: Anonymised, unique at country level

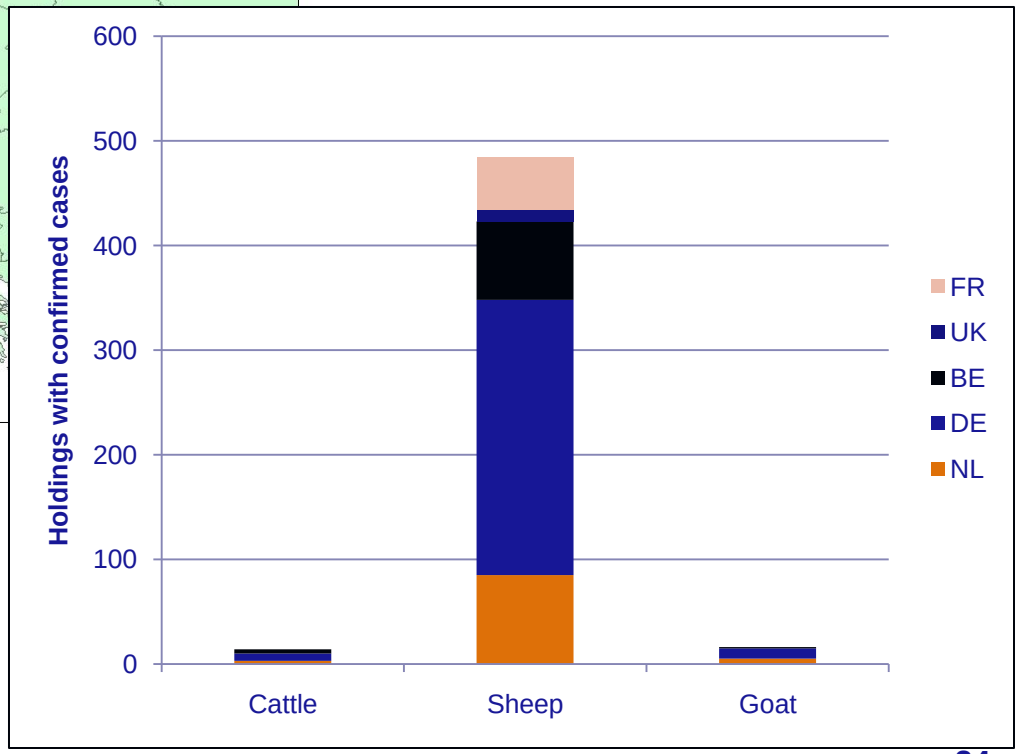
Herd/flock level: number animals, females of breeding age, pregnant, live births, still births, abortions, dystocia, AHS cases, animals tested, animals positive

Animal level: to facilitate epidemiological research, including assessment of within-herd spread, morbidity, case fatality rate, duration of symptoms (adult animals), risk period for infection during pregnancy, other risk factors

Regular updates



Areas affected
Confirmed cases in holdings by date of first suspicion
Morbidity and mortality rates



- Updates every two months
- Publically available
- Support risk managers

What is next:

Information- Co financed scientific Studies

Trade – Harmonised approach from EU with the best scientific support

-Scientific seminar – DG SANCO with support of EFSA and ECDC

What is next

EFSA

- Regular updates of epidemiological situation
- Report on the overall assessment of the impact of SBV on animal health, animal production and animal welfare (**31 May**)

For further information or any additional questions, please contact sbv.ahaw@efsa.europa.eu