



EFSA- AHAW opinions on Bluetongue, 2007-2008

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- Chronology of BT
- EFSA activities
- Coordination

- Effectiveness.....

Bluetongue

Chronology

- 17/8/2006: 1° BTV8 case reported:
- 19/9/2006: AHAW Panel Statement
- 6/10/2006: Mandate to the BTV8 EPI WG
- 11/11/2006: Mandate to the AHAW from COM
 - focussing on the control of vectors and vaccines for all BT serotypes
- 17/1/2007: Consultation meeting (IFAH and vaccine manufacturers)
- 7/3/2007: EFSA self-mandate
 - origin and occurrence of Bluetongue exotic and previously exotic serotypes in the EU

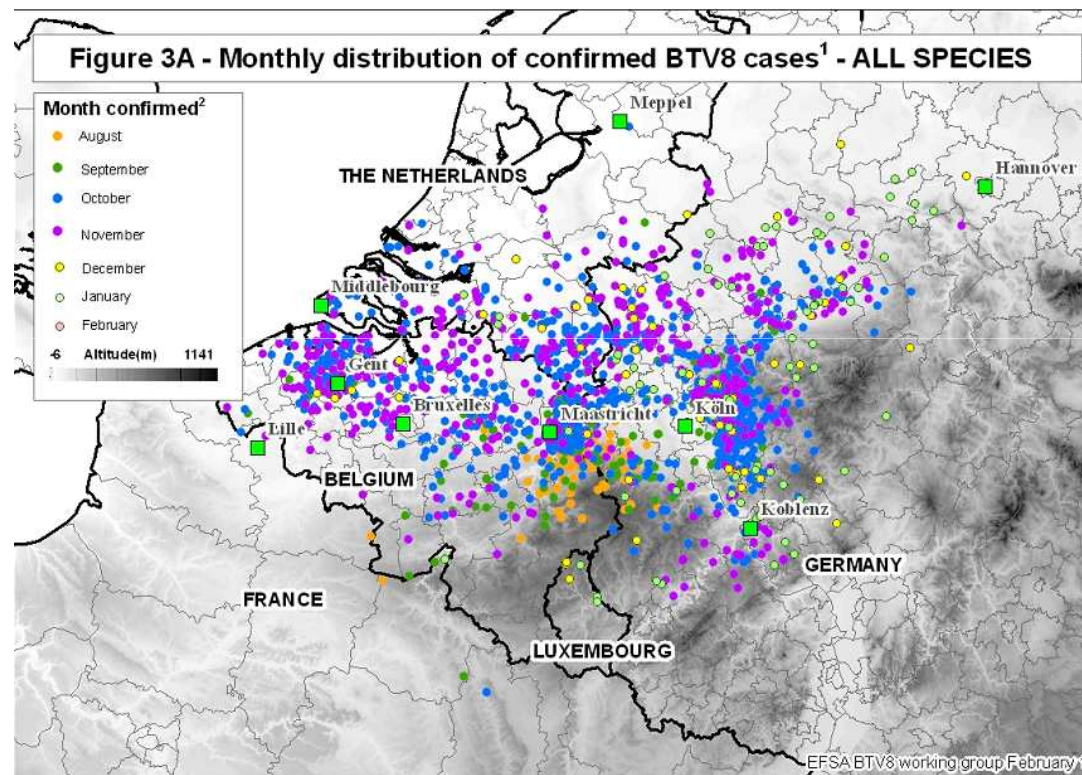
Bluetongue

Chronology

- 19/4/2007: EFSA consultation meeting
 - with experts by EU Member States (EFSA Advisory Forum)
- 26-27/4/2007: AHAW Panel Plenary Meeting
 - Adoption of the opinion on vector and vaccines
 - Adoption of the opinion on self-mandate
- 19/6/2008: AHAW opinion
 - Update focusing on vector and vector control measures
- 11/9/2008: AHAW opinion
 - Risk of bluetongue transmission in animal transit

Bluetongue 2006

- 17/8/2006: 1° BTV8 case reported:
 - Maastricht, The Netherlands
- Peaks in October



- Recommended
 - i) the harmonization of collection of epidemiological data and sampling procedures
 - ii) to monitor and study the spatial / temporal pattern of potential and known vector occurrence
 - iii) sharing of information

 Investigation of the routes of introduction of BTV-8 in EU

6/10/2006: BTV8 EPI WG

- WG including experts from all affected MS
- Weekly overview of the epidemic (OCT –JAN)

Feb 2007- Global Epidemiological Analysis

- **Source of introduction could not be identified**

Infected animals

Other

- **Clinical signs, morbidity and mortality**

Clinical signs were much more prominent in sheep than in cattle.

10% of cattle herds and 7% of the sheep flocks

BTV-8 infected did not show any clinical signs

No mortality was observed in 66% of the sheep flocks and 91% of the cattle

- **Time space pattern of spread between herds**

A relationship between wind density and case density was established.

- **Animal movements**

geographical dispersion of movements was mapped:

1 April - 18 August: free movement of ruminants

8 August - 30 November: movements restricted.

The extension of the epidemic to the east can not be explained by the movement of animals which mainly occurred in a north-western direction.

Feb 2007- Global Epidemiological Analysis

- **Relevant Vectors**

The BTV-8 virus was found to be present in vectors (*Culicoides species*) which are endemic to north-western Europe. ***C. imicola***, was not found amongst a total of approximately 100,000 *Culicoides* collected in the infected MS.

Studies in France and in the Netherlands showed that later in the season, more *Culicoides* were captured ***inside rather than outside stables***

Low numbers of adult *Culicoides* principally of the *Obsoletus* complex, including freshly blood fed individuals, were on occasion captured in light traps operated **throughout the winter**

- role played by **vectors** in the spread of BTV and the means to control them.
- recent development and experience gained in the use of the different **vaccines** against BT for sheep, cattle and goats.
- scientific assessment of the **vaccination** against BTV serotypes.
- scientific assessment on the suitability of vaccination to **control BT** and as an additional tool to **facilitate safe trade** of animals.

Role of vector in the transmission of BTV

- *Culicoides* midges the only known vector of BTV
- 120 species occur in Europe
- Widely differing habitats
 - Wet soil
 - Dung
 - Decaying vegetative material
- Overwintering during larval stages (adults may survive winter in small numbers)
- Activity is primarily temperature and light dependent

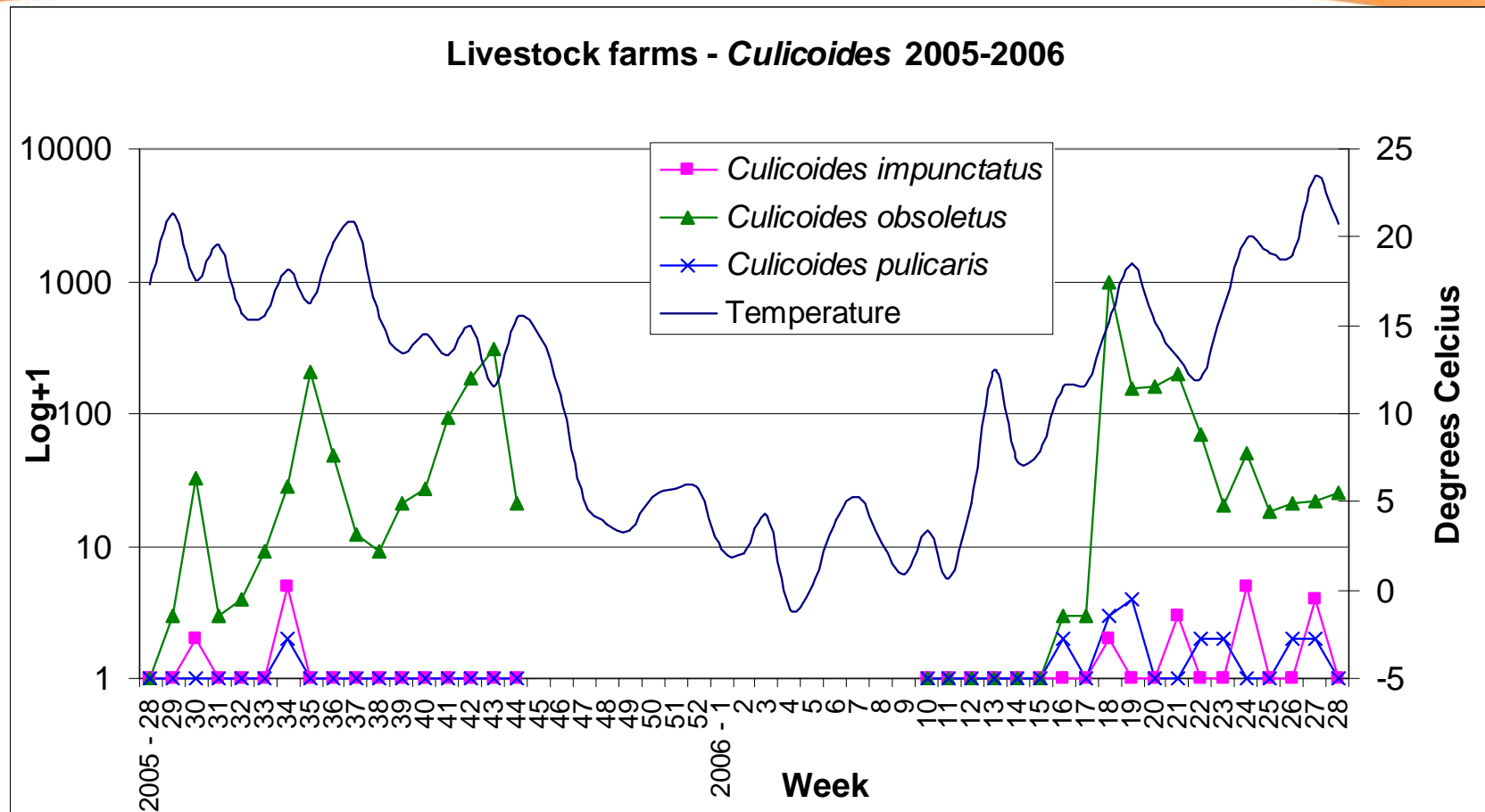


Figure EPIWG. - Livestock farms: catches of three most abundant *Culicoides* species in 2005-2006 in The Netherlands

C&R on adult feeding habitats/host interaction

- C Very little is known about comparative biting rates and what percentage of this occurs during daylight hours.

- R In order to determine comparative biting rates of different livestock prey a range of capture methodologies should be implemented (e.g. bait animals, suction traps, CO₂ traps)

- C In southern Europe some vector species remain active throughout the year which may explain why BTV has now persisted there for almost a decade.

- R Annual detection of first vector activity and of overwintering adults should be monitored as closely as practicably possible to obtain some measure of the potential reoccurrence of BTV in the new season.

C The precise levels of protection provided by insecticide treatment and housing of stock is unclear and neither are likely to eliminate the risk of BTV transmission. However, both methods are likely to provide some measure of protection.

R Insecticides treatments should not be used except as a risk mitigation measure in certain circumstances (e.g. breeding animals, trade or in recently infected farms)

- Significant gaps in our knowledge of the vector *Culicoides* of Europe were identified. More specifically the ecology of each species is not well understood.

Nevertheless, it would seem evident that multiple and overlapping vector ecologies will increase the level of risk for the transmission of BTV in Europe.

Use of Bluetongue vaccines

- Council Directive 2000/75/EC provides for vaccination in protection zone
- Article 8 of Directive 2001/82/EC allows the use of vaccines without marketing authorization
- Currently only inactivated vaccines are used
- Inactivated BTV-8 vaccines in development but were not yet available

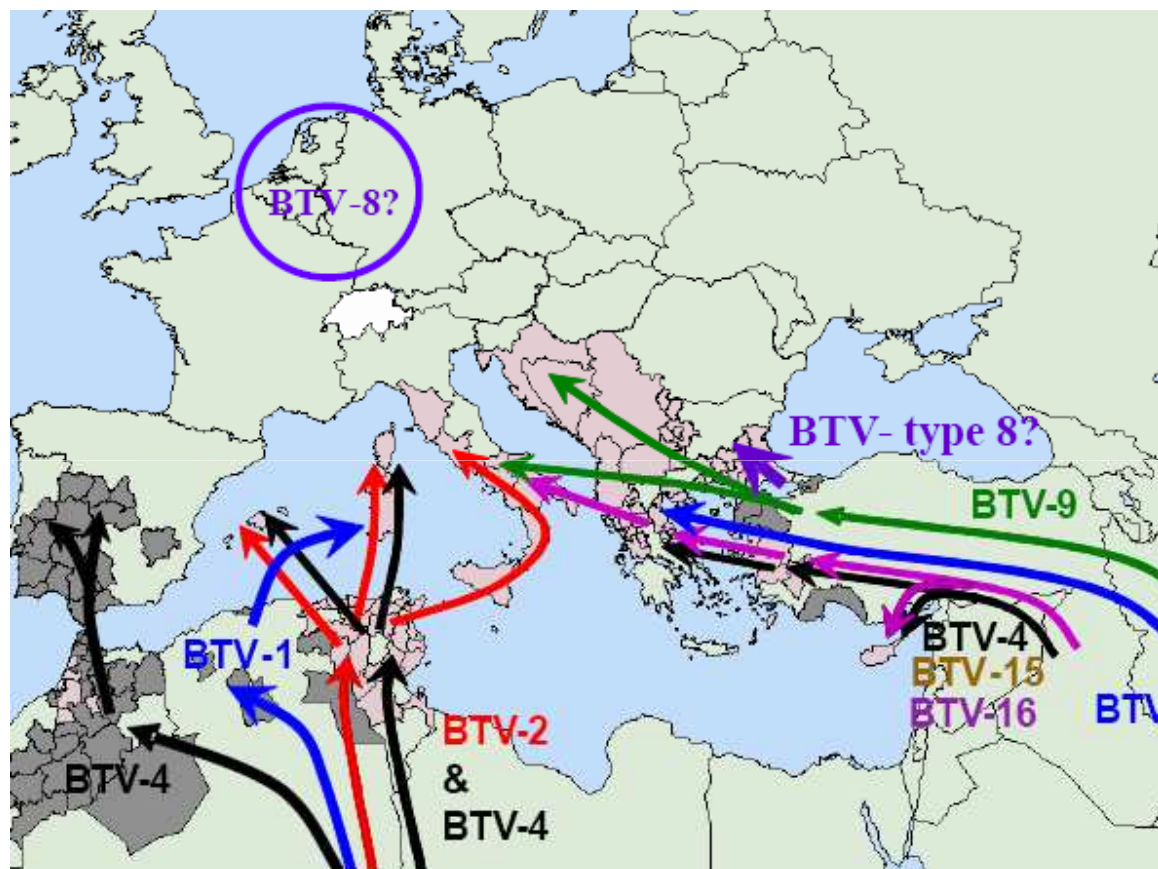
C&R on vaccines

- C Presently, it is not possible to differentiate vaccinated from infected animals by serological tests
- C When administered in two doses, all BTV inactivated vaccines were able to fully protect the animals from clinical signs and viraemia for a long period.
- R If inactivated vaccines are available, these vaccines should be preferably used.
- R If MLV vaccines are used, it is recommended to take into consideration the duration of viremia induced by the vaccinal strain.
- R Waiting period – 60 days

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BTV 8 origin- TOR

- The significance of the origin and occurrence of Bluetongue exotic and previously exotic serotypes in the EU for a better understanding of the possible evolution of the spread of this specific and other serotypes; and;
- Recommendations about potential preventive measures to avoid such events in the future.
- the possible routes of introduction of serotypes of BTV were considered and included four possible pathways:
 - imported infected ruminants
 - infected vectors introduced along with horses
 - infected vectors introduced along with exotic plants
 - contaminated or unstable vaccines



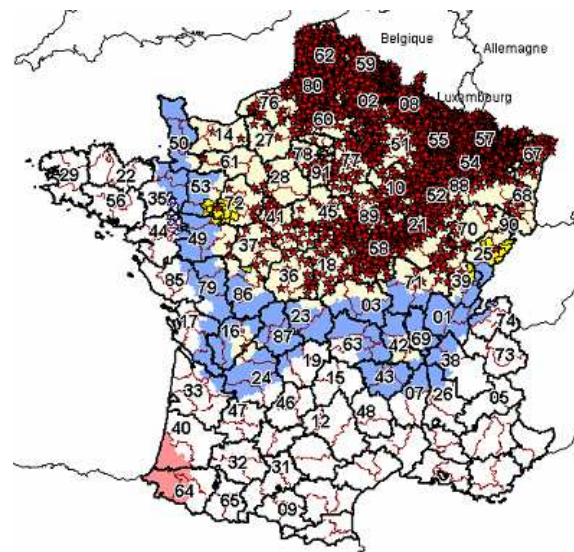
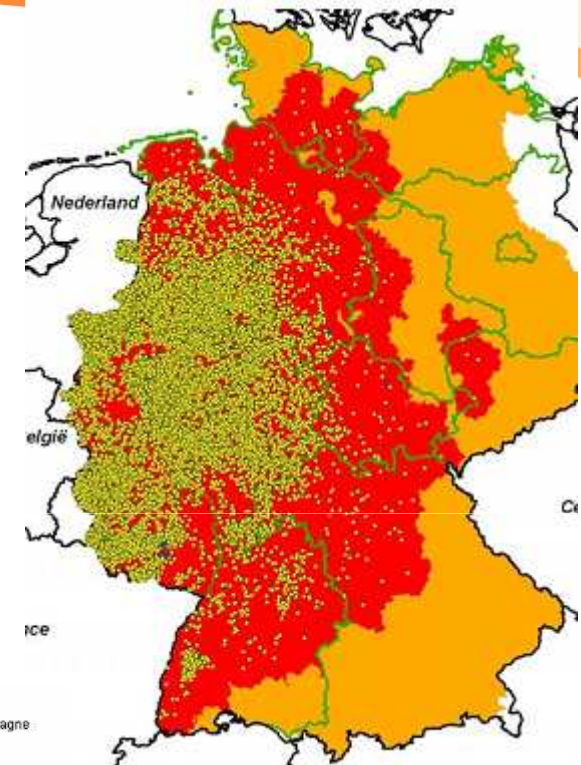
Map of the possible routes of introduction of the different BTV serotypes isolated in Europe since 1998. (Adapted from Peter Mertens, Institute for Animal Health)

Recommendations

- Use vaccines, preferably with inactivated virus, as a first line of defense.
- Use insecticides treatment on selected or valuable animals in high-risk zones and in infected areas in order to decrease biting midge densities.
- Prevent any movements of vectors with animals through trucks.
- Prevent as far as possible the contact of animals with vectors.

Bluetongue 2007

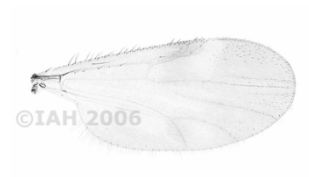
- BTV8 reappear in
 - Germany (June)
 - Belgium (early July)
 - Netherlands
 - France
 - Luxembourg
 - UK (Sept 22)
 - Denmark (Oct 14)
 - Switzerland (Oct 28)
- 25234 outbreaks at Nov 9, 2007



To review and to update previous opinions

- **vectors ecology** : determination of the seasonally free period, over-wintering mechanisms and viraemia of BTV.
- appropriateness of insecticides and repellents for *Culicoides* and the appropriateness of a set of measures, which can be used to protect animals **against attacks by vectors**.
- To assess the risk of **transit** (Reg.266/2007)

- Vertical transmission of field strains of BTV-8 has been demonstrated in both field and experimental studies – **Any role in virus overwintering?**
- BTV-1, -4 and -8 infection and clinical disease of various wildlife has recently been described - **wildlife role in the spread of BTV?**



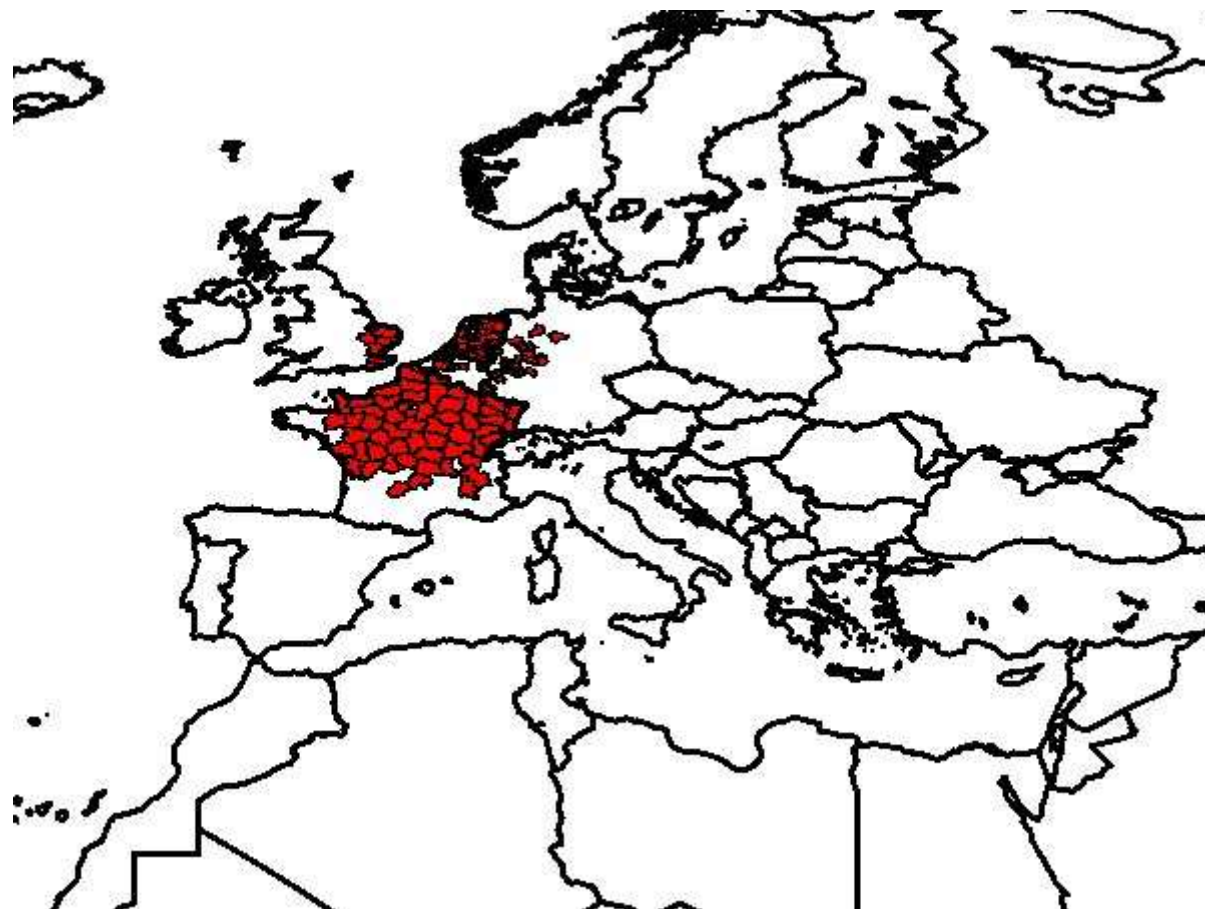
Species *	Easy to identify	Virus Isolation/PCR	Med Europe	temperate Europe	Diurnal activity	Indoor/ Outdoor
<i>C. imicola</i>	Yes	+/+	+++	-	-	+/+
Obsoletus complex	Yes	+/+	+++	+++	+	+/+
<i>C. dewulfi</i>	No	-/+	+	+++	+	+/+
<i>C. chiopterus</i>	Yes	-/+	+	+++	+	+/+
Pulicaris complex	Yes	+/+	+++	+++	-	+/+
<i>C. Pulicaris</i>	no	+/+	+	+ (+)	-	+/+
<i>C. newsteadi</i>	yes	-/-	+++	+	-	+/+
<i>C. Lupicaris</i>	no	-/-	(-)	(+)	-	+/+
<i>C. punctatus</i>	no	-/-	+ (+)	+++	-	+/+

- Real Time- PCR and viraemia length
- Vector competence/vectorial capacity
- light traps / animal traps
- Vector free /Vector low abundance season

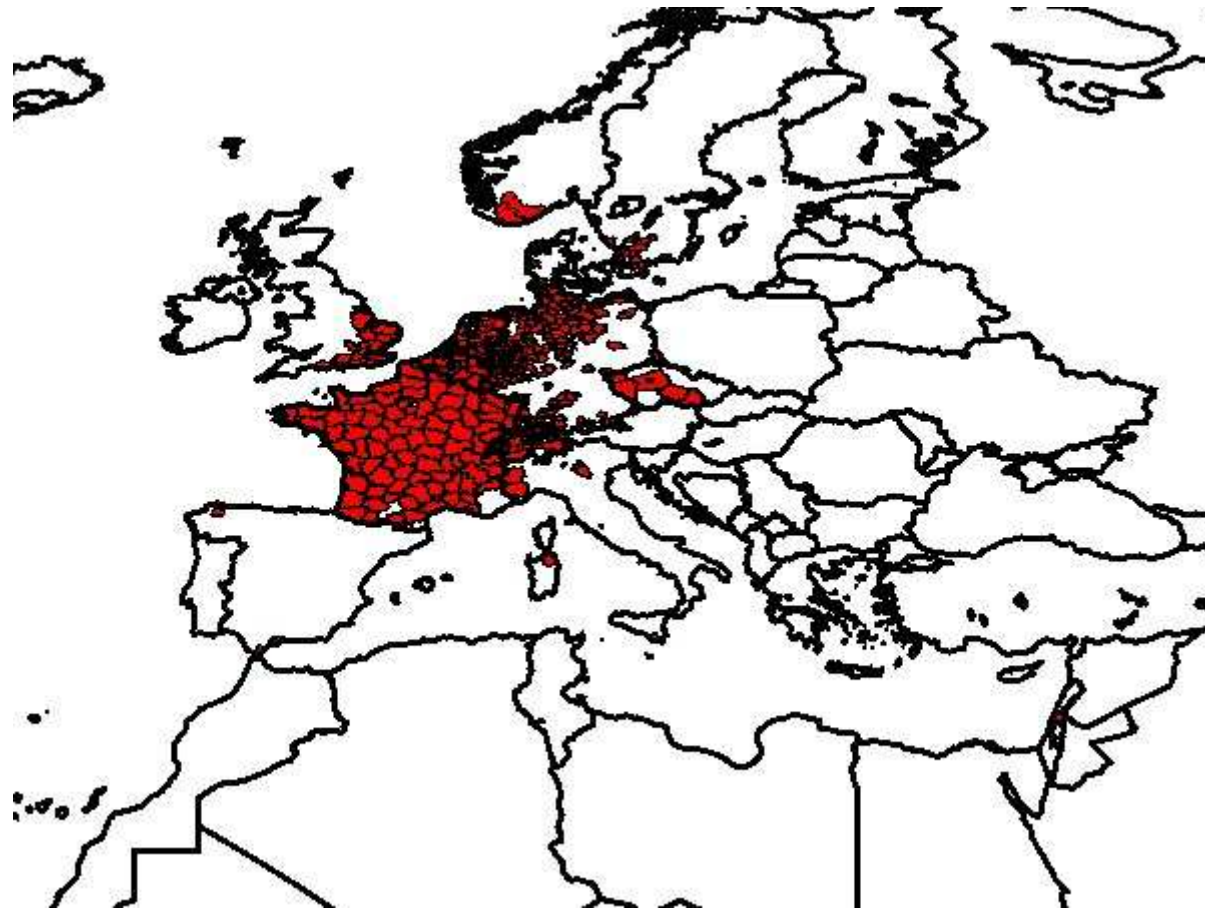
December 06



December 07



October 09



	BTV-8*			Other serotypes		
	No deaths	1 or more deaths	%	No deaths	1 or more deaths	%
CATTLE	28,846	830	2.8%	493	0	0.0%
GOATS	487	17	3.4%	861	50	5.5%
SHEEP	9,376	2,585	21.6%	2,849	4,356	60.5%
WILD RUMINANTS	19	27	58.7%	1	0	0.0%
TOTAL	38,728	3,459	8.2%	4,204	4,406	51.2%

* includes all countries except Bulgaria, Italy, Portugal and Spain

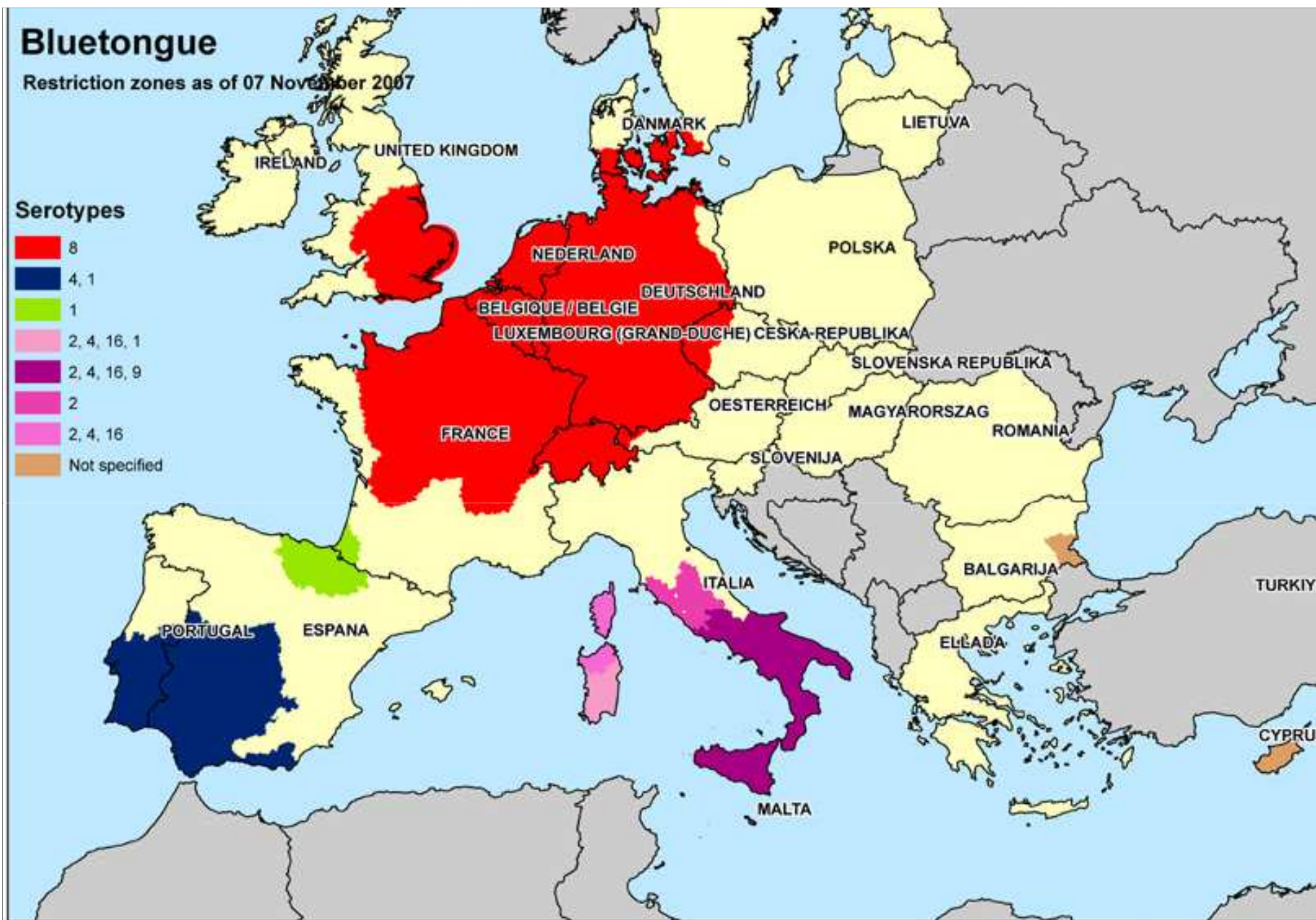
**Number of herds with one or more dead animals
(ADNS May 2008).**

Bluetongue

Restriction zones as of 07 November 2007

Serotypes

- 8
- 4, 1
- 1
- 2, 4, 16, 1
- 2, 4, 16, 9
- 2
- 2, 4, 16
- Not specified



THANK YOU!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

BTV 8 EPI - Working Group and its Subgroup

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2006 WG

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2008 WG

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