CODA - CERVA

The impact of the Infection: Country Indicators

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.be

Outline

- Which might be “impact indicators” for SBV
  - What do we know !?
- Timeline of SBV impact
- What do we not know?
  - Further research
- Conclusion(s)

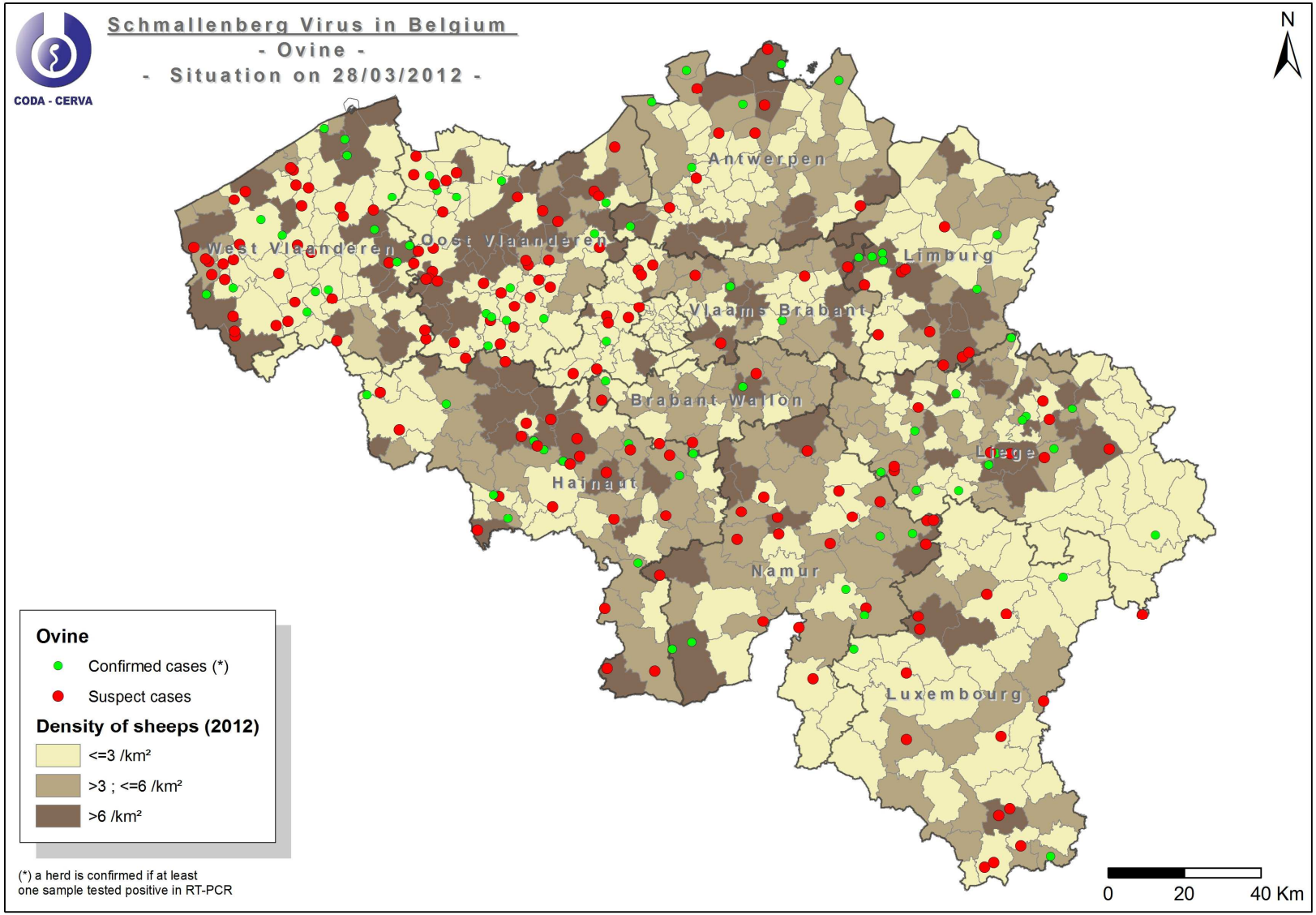
Impact indicators for SBV

- Cases/Distribution: calfs, lambs, ...
  - Confirmed cases in different SBV affected countries
- Symptoms
- Incidence at herd level
- Mortality data
- Birth data
- Milk production data
- Vector data

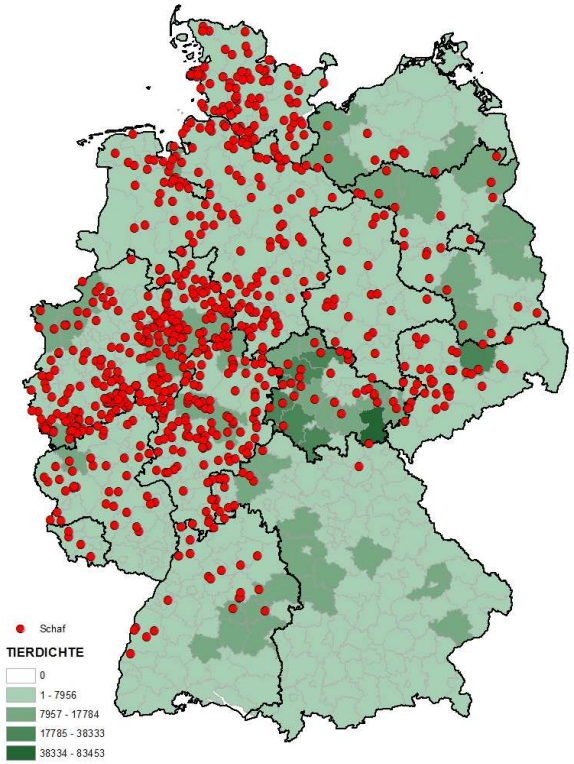
Number of confirmed Cases (herds)

The Netherlands (29/03)			
Cattle	Sheep	Goat	**Total**
124	105	5	**244**
Belgium (28/03)			
138	162	2	**302**
Germany (26/03)			
201 + 1 (Bison)	825	44	**1070**
UK (28/03)			
20	203	0	**223**
FR (28/03)			
59	854	11	**924**
Luxembourg, Italy , Spain (28/03)			
± 9 in total			

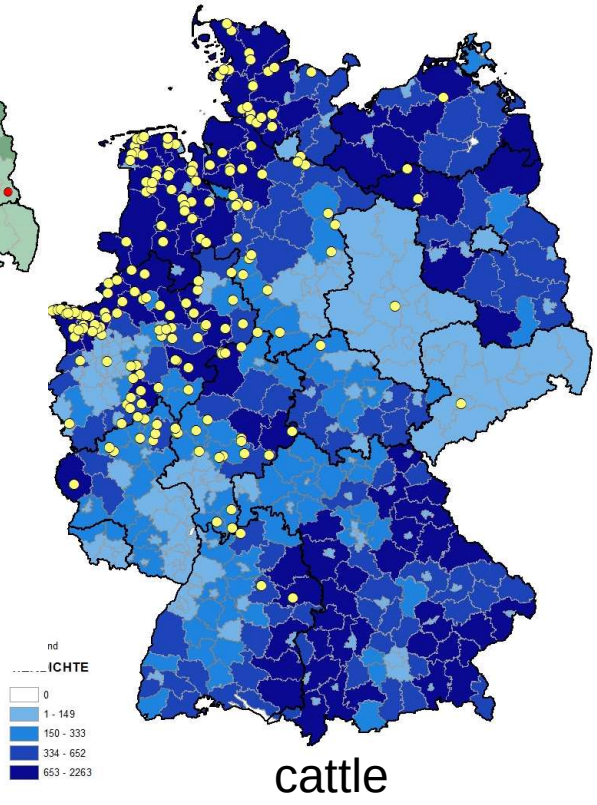
SBV infection and animal density in Belgium Sheep



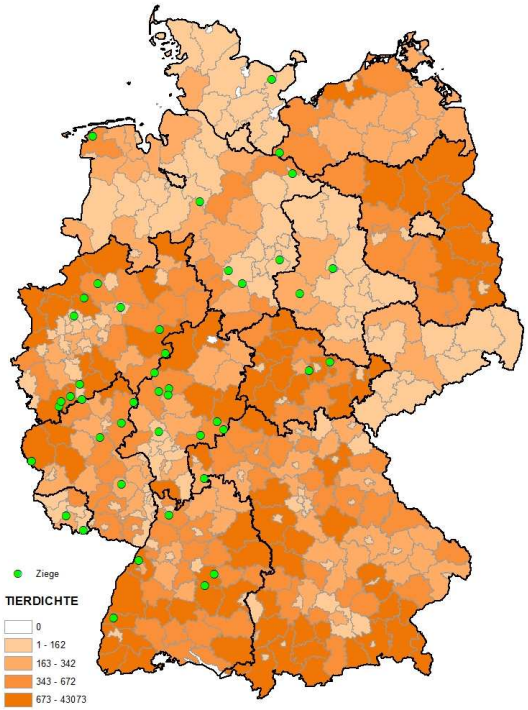
SBV infection and animal density in Germany



sheep



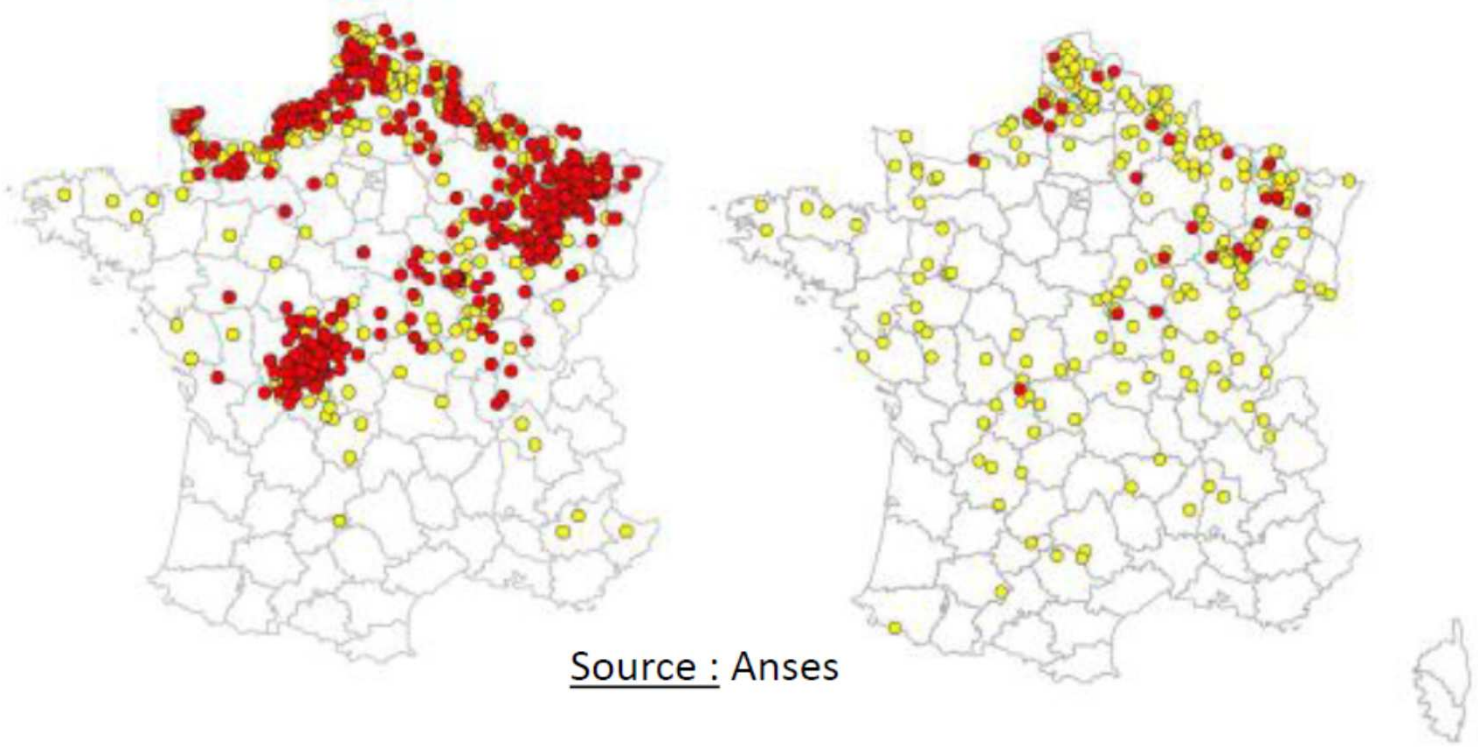
cattle



goats

SBV infection in France

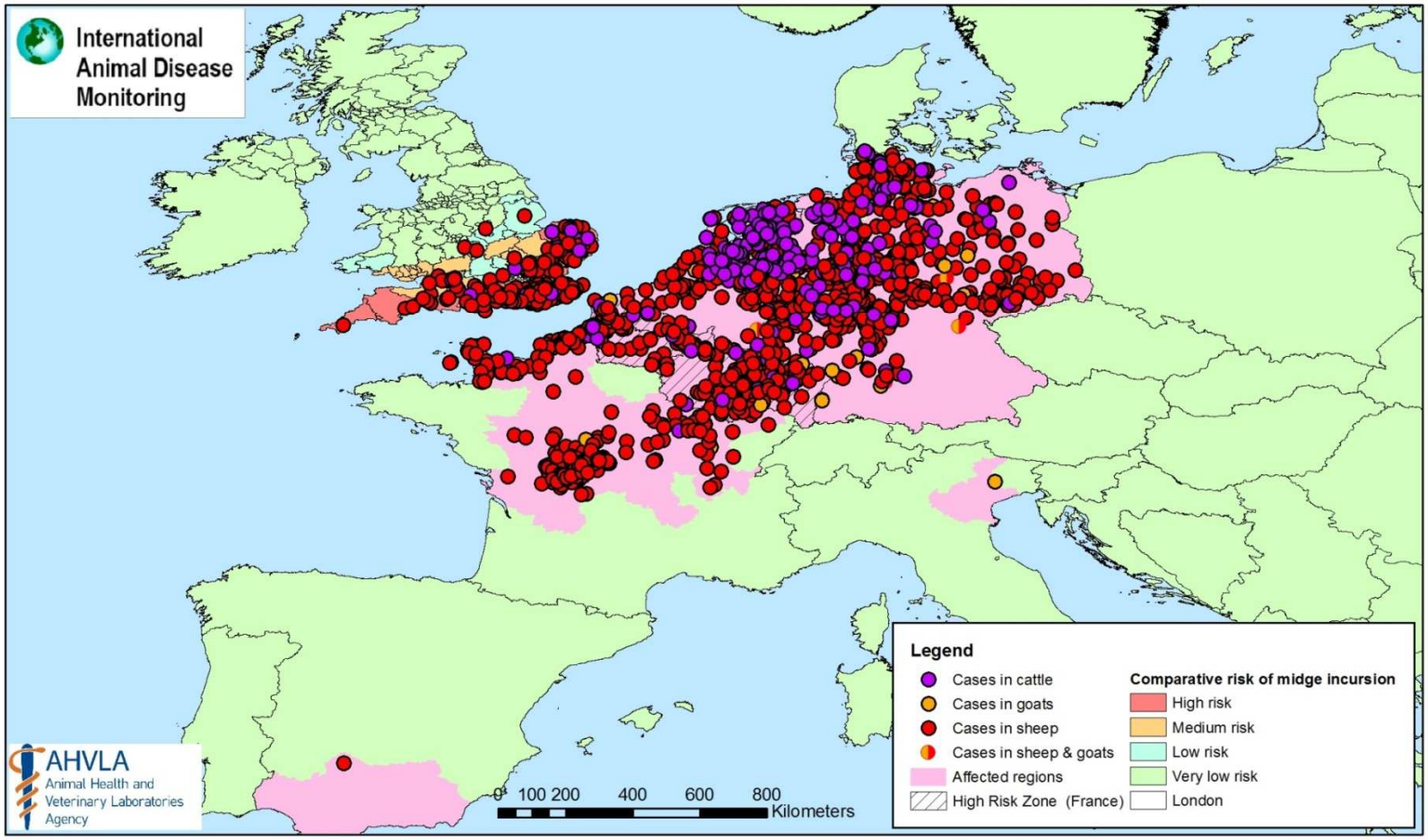
Location of **confirmed outbreaks** and **farms has been a clinical suspicion of SBV**



Source : Anses

Distribution of confirmed SBV cases

[source AHVLA]



Outbreaks of Schmallenberg disease in cattle, sheep and goats, affected regions in the EU and UK counties at risk of vector incursion during 2011

Not all countries are reporting case locations on a regular basis

Actual Scale 1:15,000,000

Date Prepared 26/03/2012

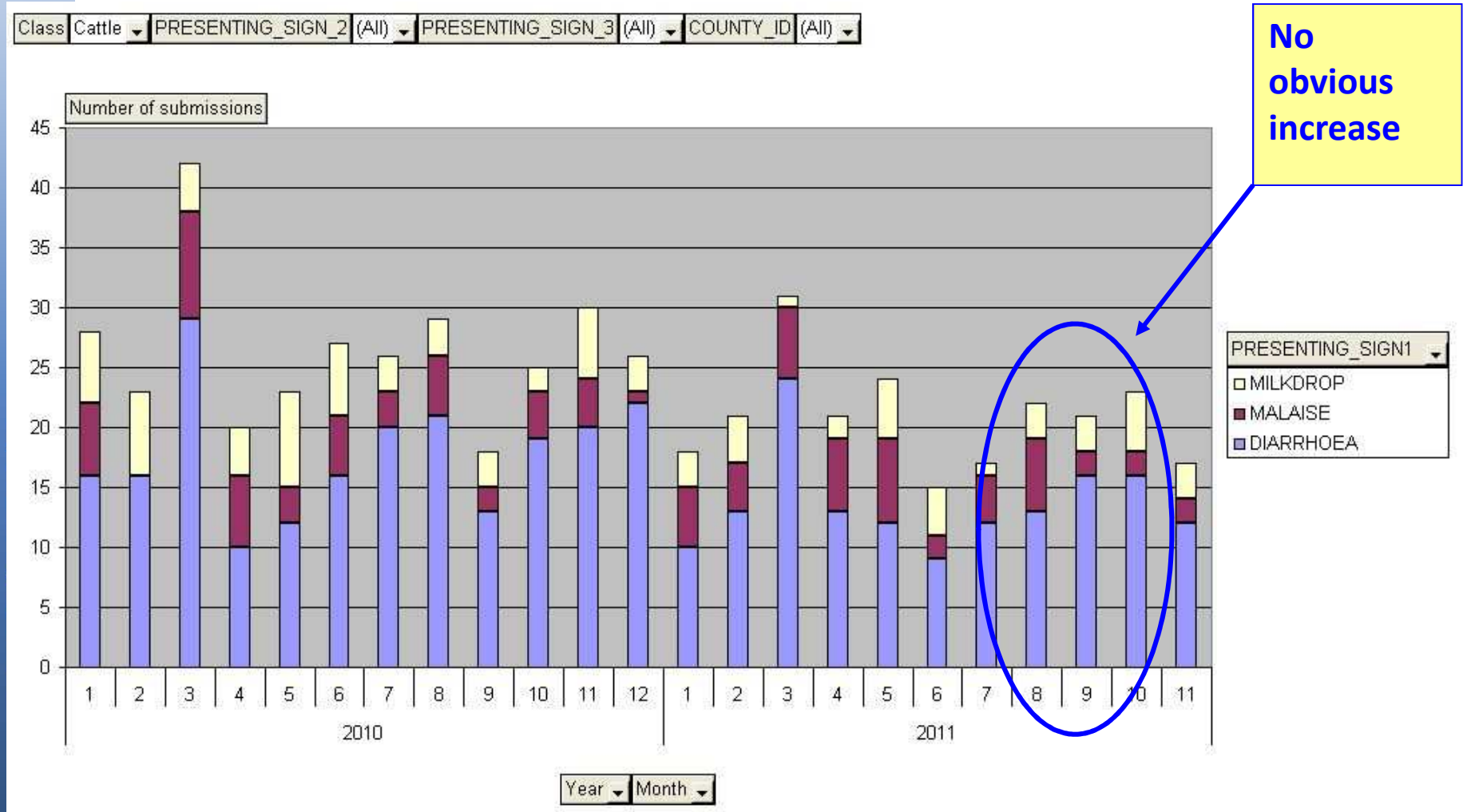
Map prepared by IDM

Symptoms: Adults

- **Probably often unapparent, but some acute disease during the vector-active season**
  - Fever
  - Impaired general condition
  - Anorexia
  - Reduced milk yield (by up to 50%)
  - Diarrhoea

- **Vets were reporting this in NL and BE (pers. comm) during late summer in 2011 !**
  - **Did we pick up that signal seriously ? What in 2012?**
  - Recovery
    - within a few days for the individuals
    - 2-3 weeks at the herd scale

Scanning surveillance submissions from cattle in five south-east England counties with "Milk drop", "Malaise" or "Diarrhoea" in 2010 and 2011 [source: AHVLA]



Symptoms: Offspring

- *Malformed animals and stillbirths (calves, lambs)*
- Arthrogryposis (abnormal joints)
- Hydrocephaly (build up of fluid in skull)
- Brachygnathia inferior (overshot jaw)
- Ankylosis (stiff joints)
- Torticollis (twisted neck)
- Scoliosis (deformed spine)

- **Vets and farmers haven't seen this during main lambing (calving) period before summer 2011 !**
- **Vets and farmers could not link these symptoms to other known pathogens !**

Impact Cases: Timeline

- **Expected period for detection of further cases based on infection time and gestation duration**

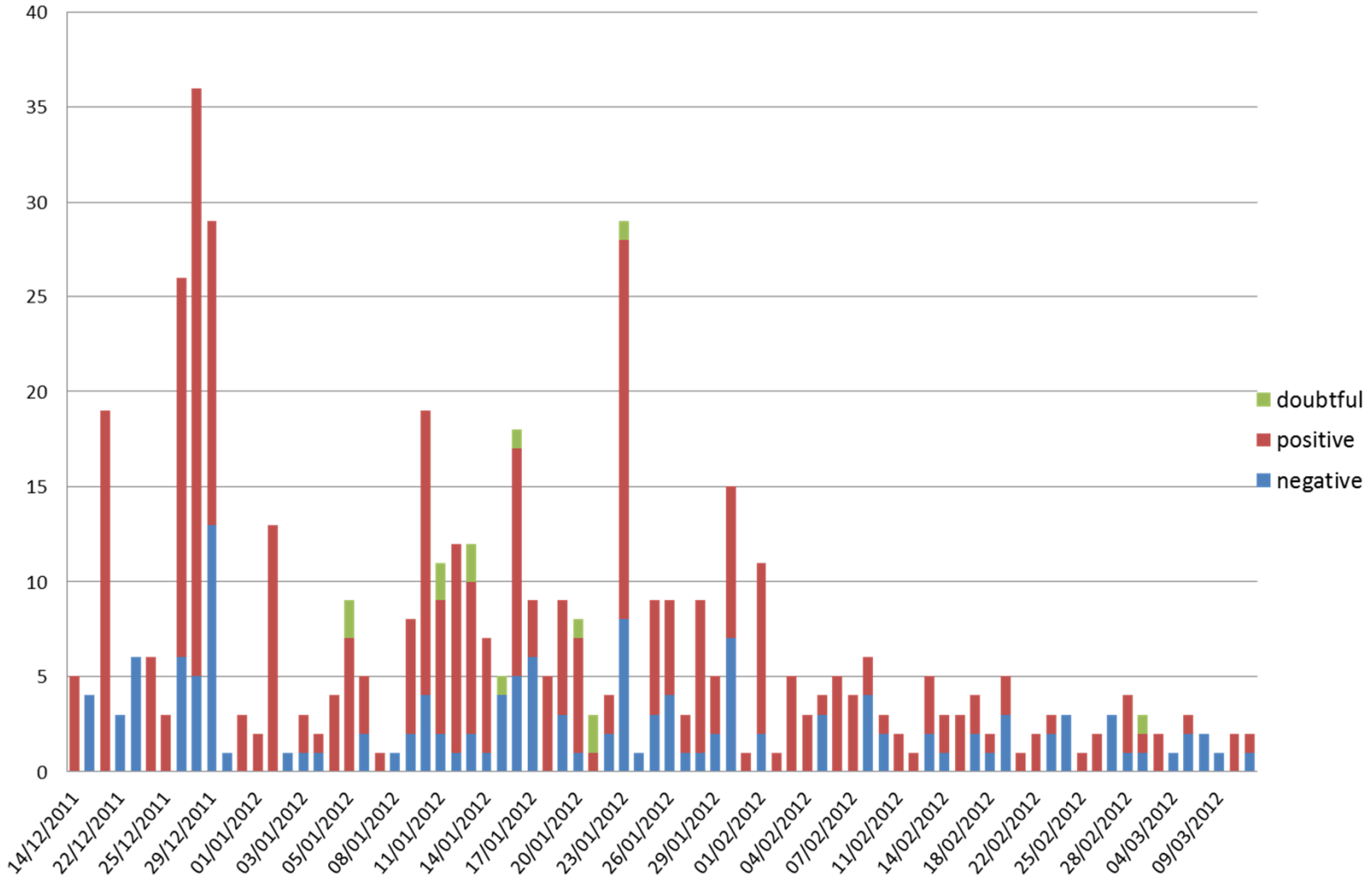
[Source EFSA REPORT 2012:EN-241]

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

- **As we speak ….** ☹

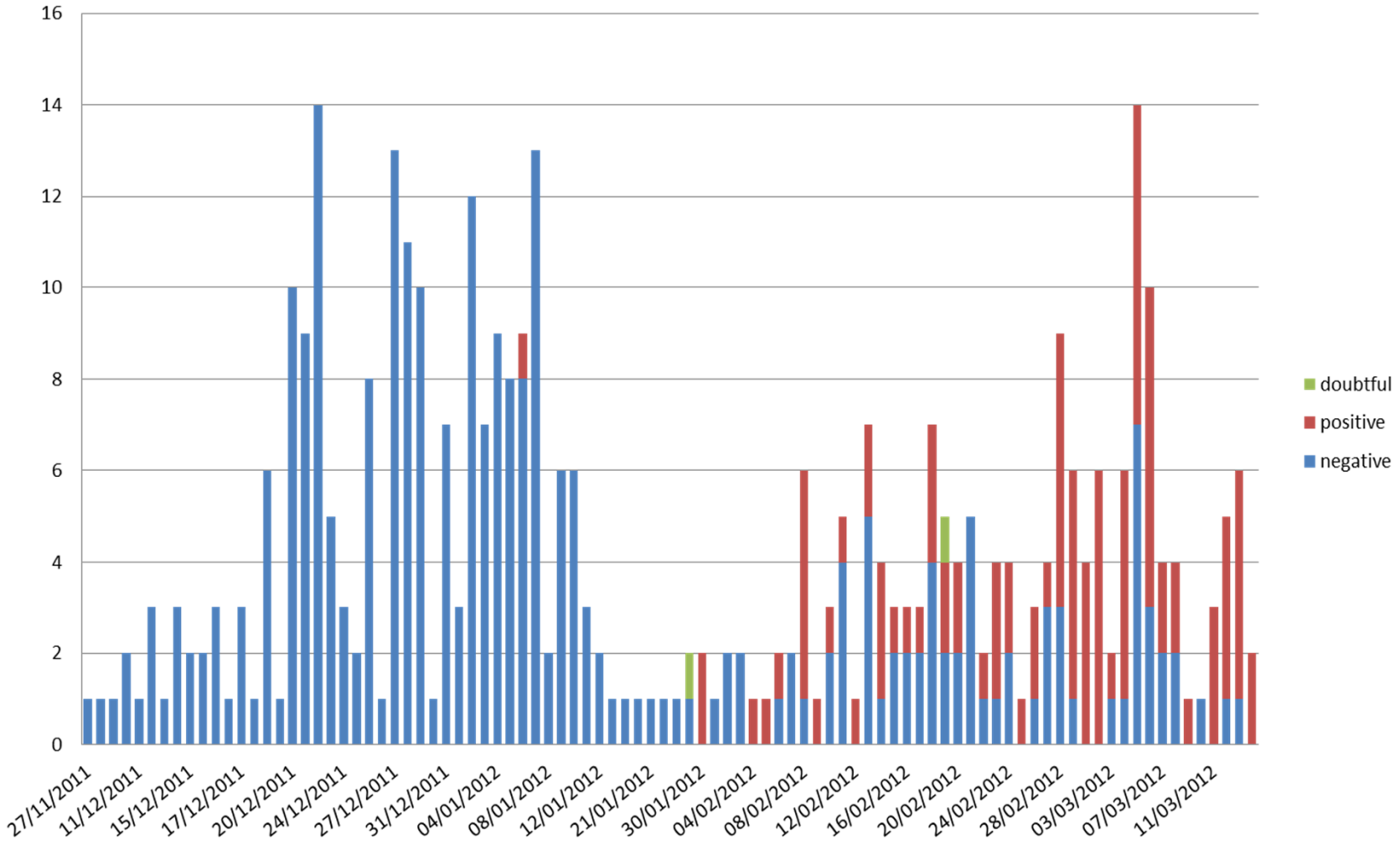
Suspicious case reports in BE: sheep

[source CODA-CERVA NRL]

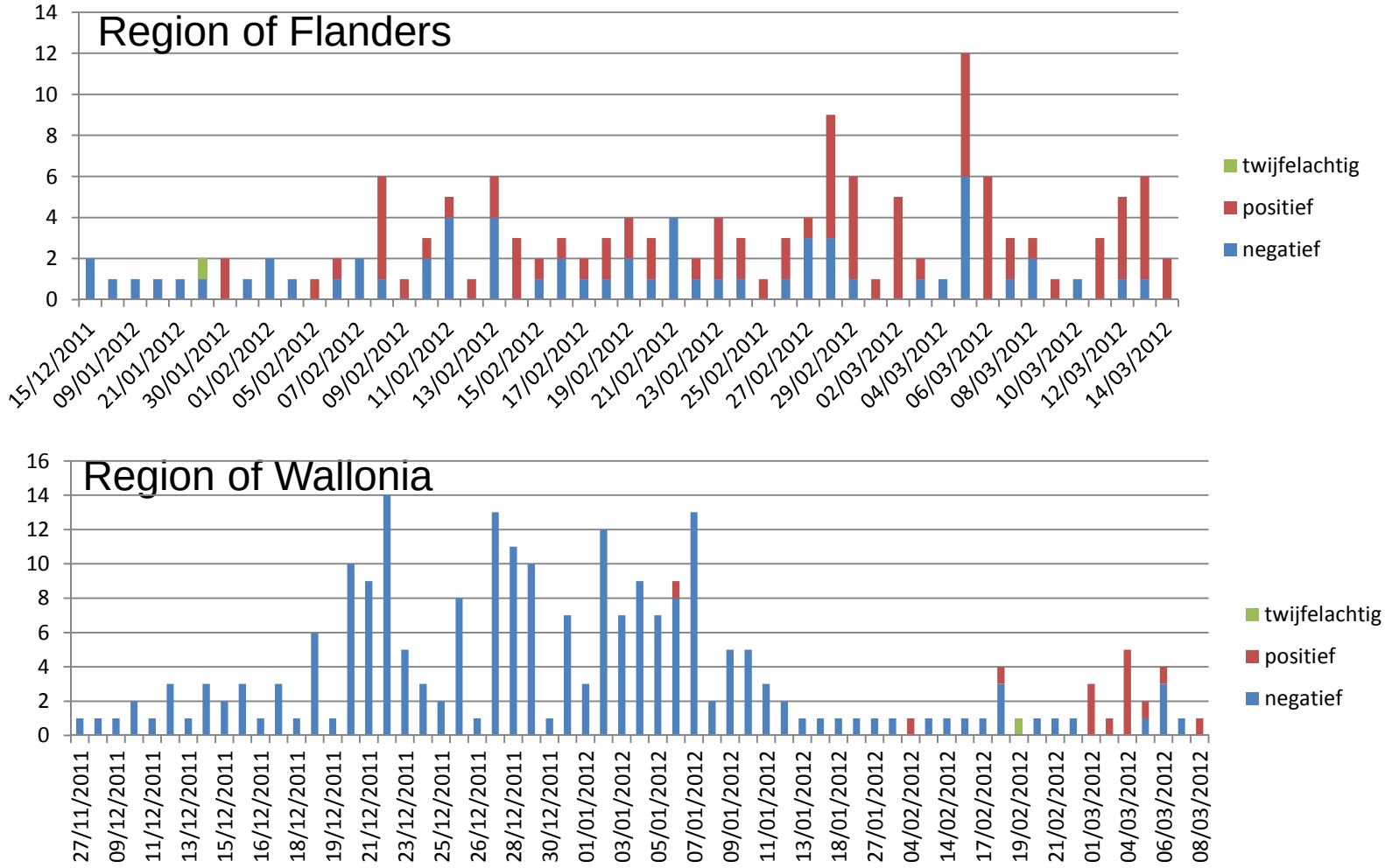


Suspicious case reports in BE: cattle

[source CODA-CERVA NRL]



Suspicion versus Abortus !?
Subregions BELGIUM



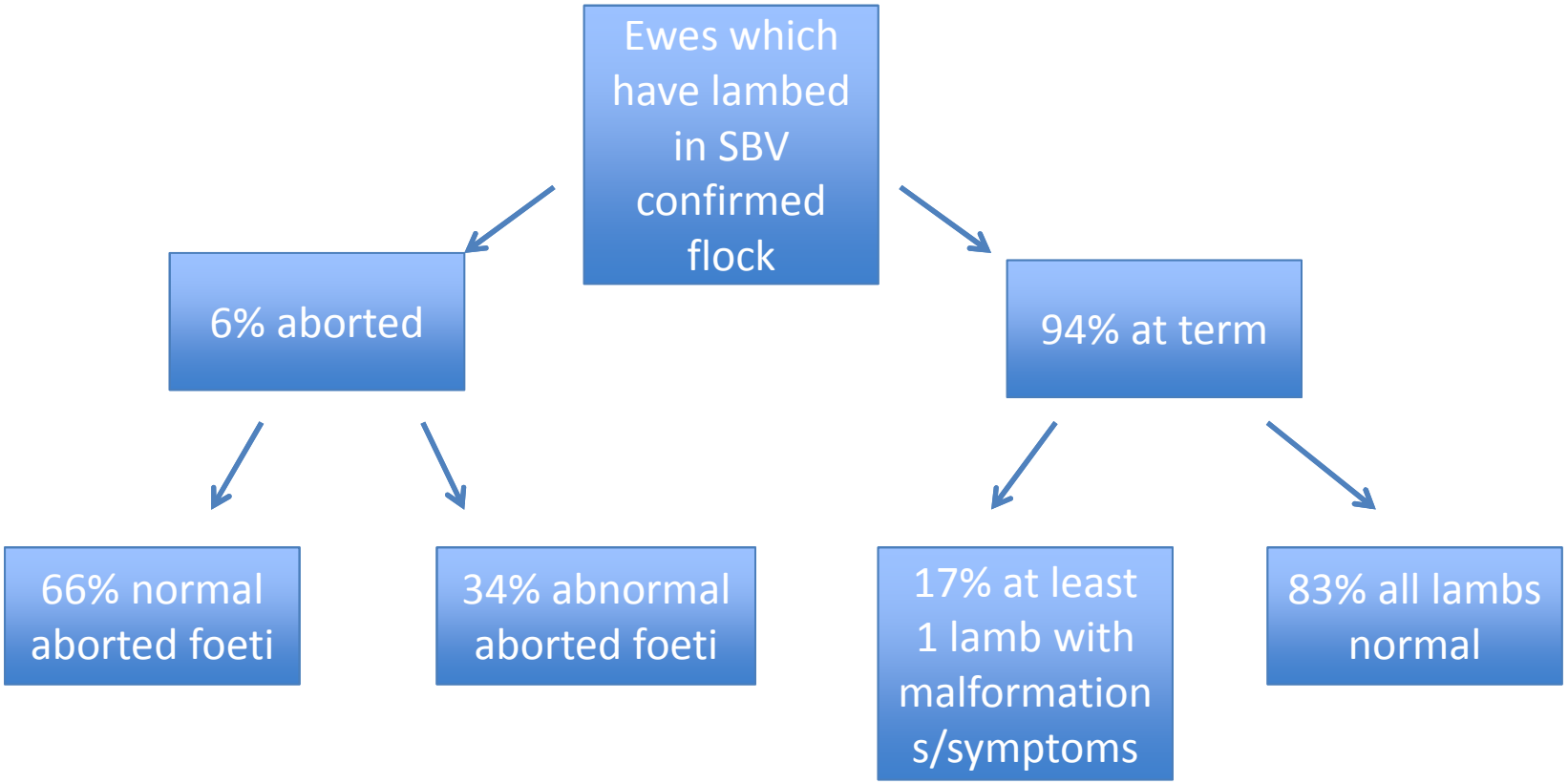
Impact on Sheep morbidity rate

[source DGZ-Vlaanderen; Guido Bertels]

Municipality	Number of ewes which lambed	Number of SBV aborted foeti	% SBV	Number of dead or euthaniazed lambs
A	13	3	23	
B	8	1	13	
C	4	3	75	4 or 5
D	10	4	40	
E	10	2	20	
F	40	3	7	
G	30	5	16	1 normal lamb
H	108	31	29	
I	75	25	33	
J	13	5	38	
K	7	4	57	
L	30	16	53	17
M	29	13	50	19
TOTAAL	**373**	**114**	**30,5**	

First results of French questionnaire in Sheep SBV confirmed flocks (average proportions)

[source ANSES, P. Hendrickx; FESASS]



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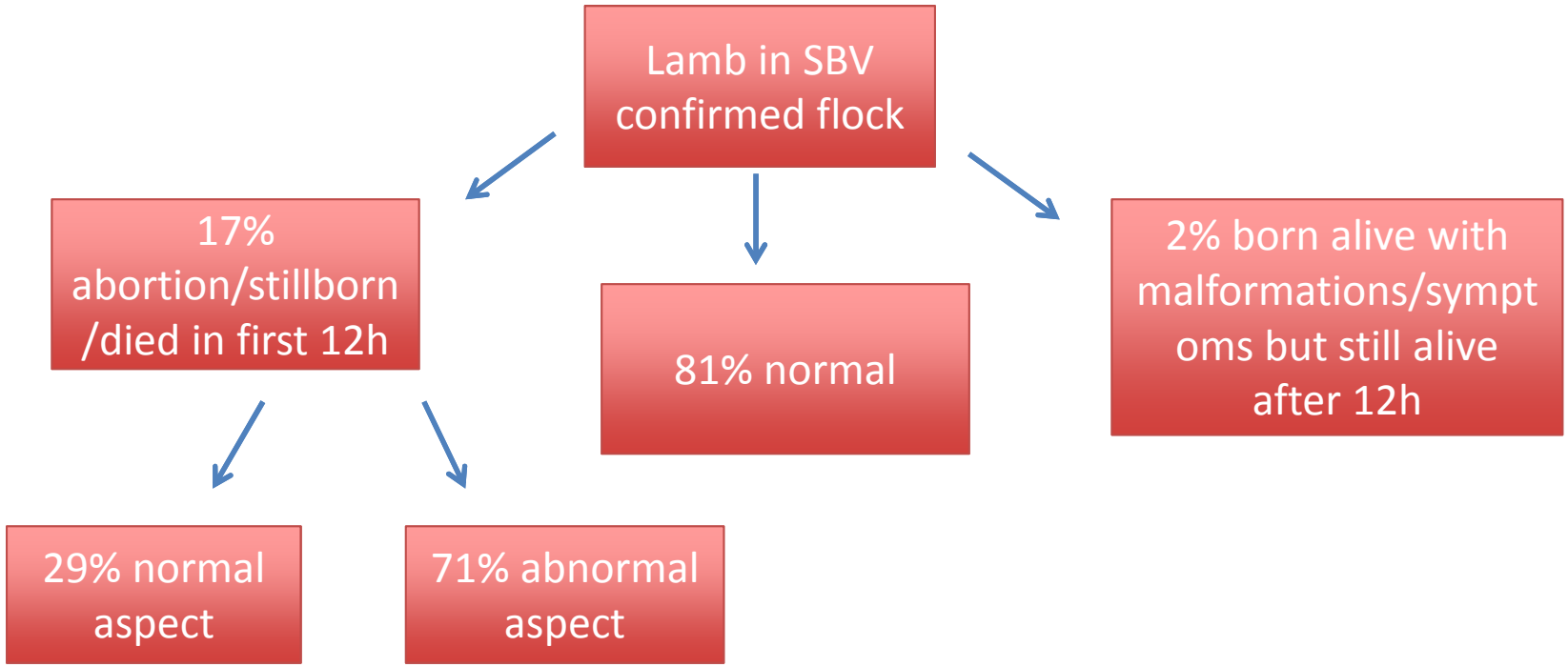
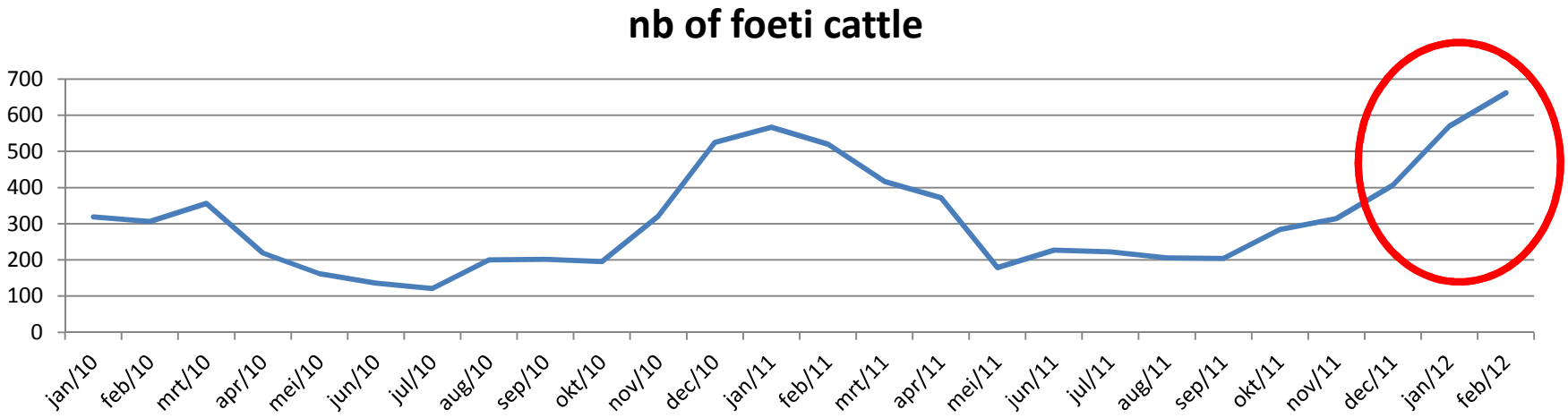


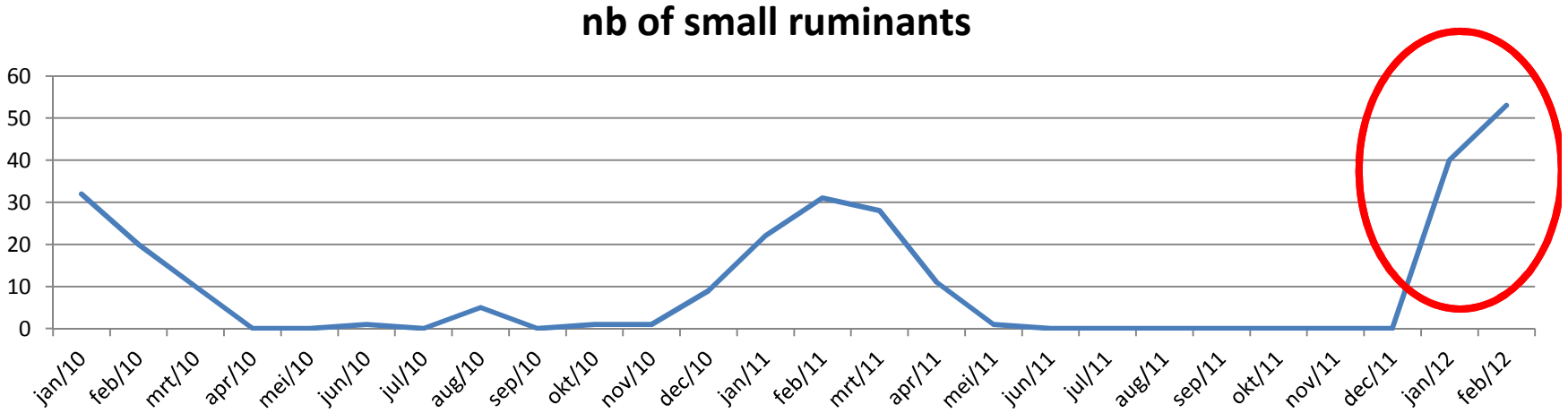
Impact on Cattle morbidity rate at herd level

- Much lower than in sheep
  - Additional 3% more abortions/abnormal foeti due to SBV
  - To be confirmed !
    - As we speak ... ☹

Abortion data BE 2010-2011

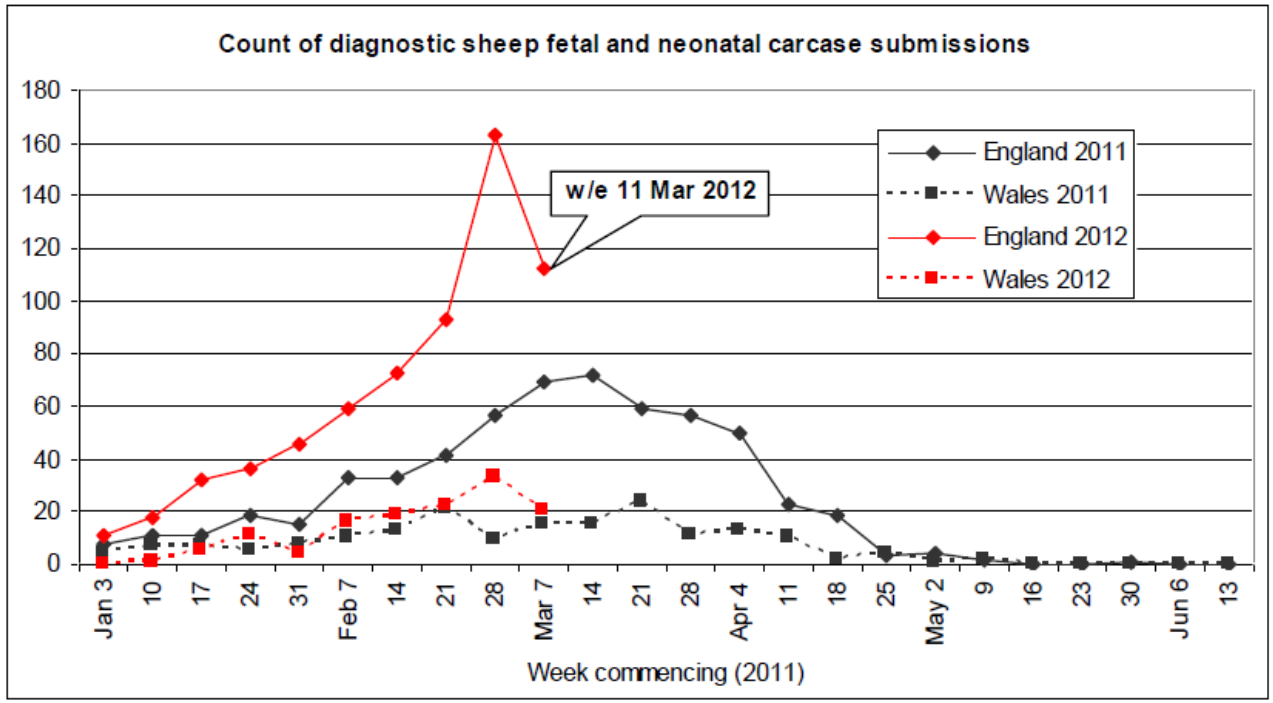
[source DGZ-Vlaanderen – Hans Van Loo]



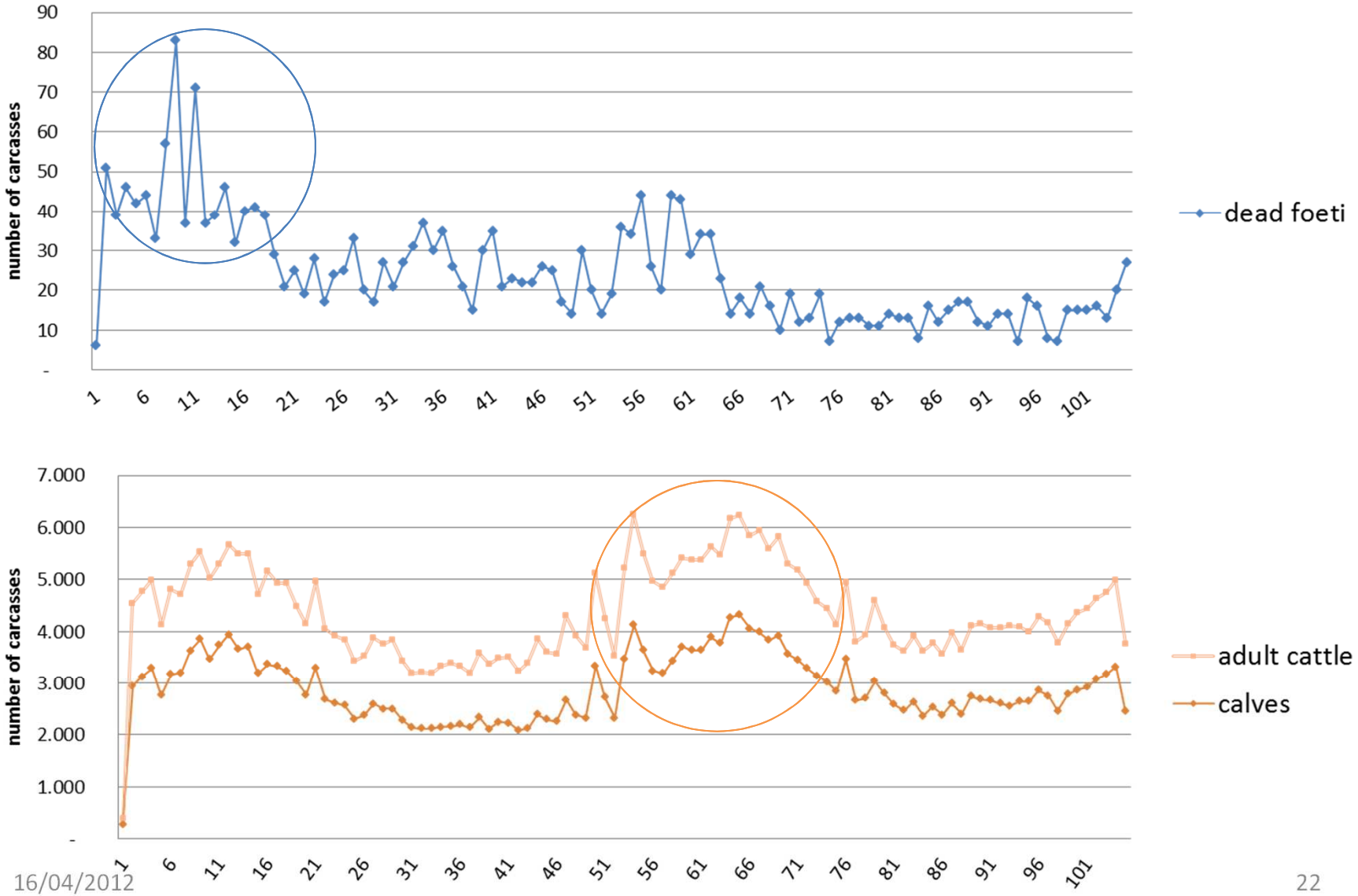


Sheep fetal/neonatal carcase submissions 2011-12 (England and Wales): increase in submissions in England in 2012 [source AHVLA]

Table 1 - Count of diagnostic sheep fetal[1] and neonatal carcase[2] submissions to AHVLA laboratories in England and Wales in 2011 and 2012. [Note: this is a count of submissions, which may each contain one or more carcases.]

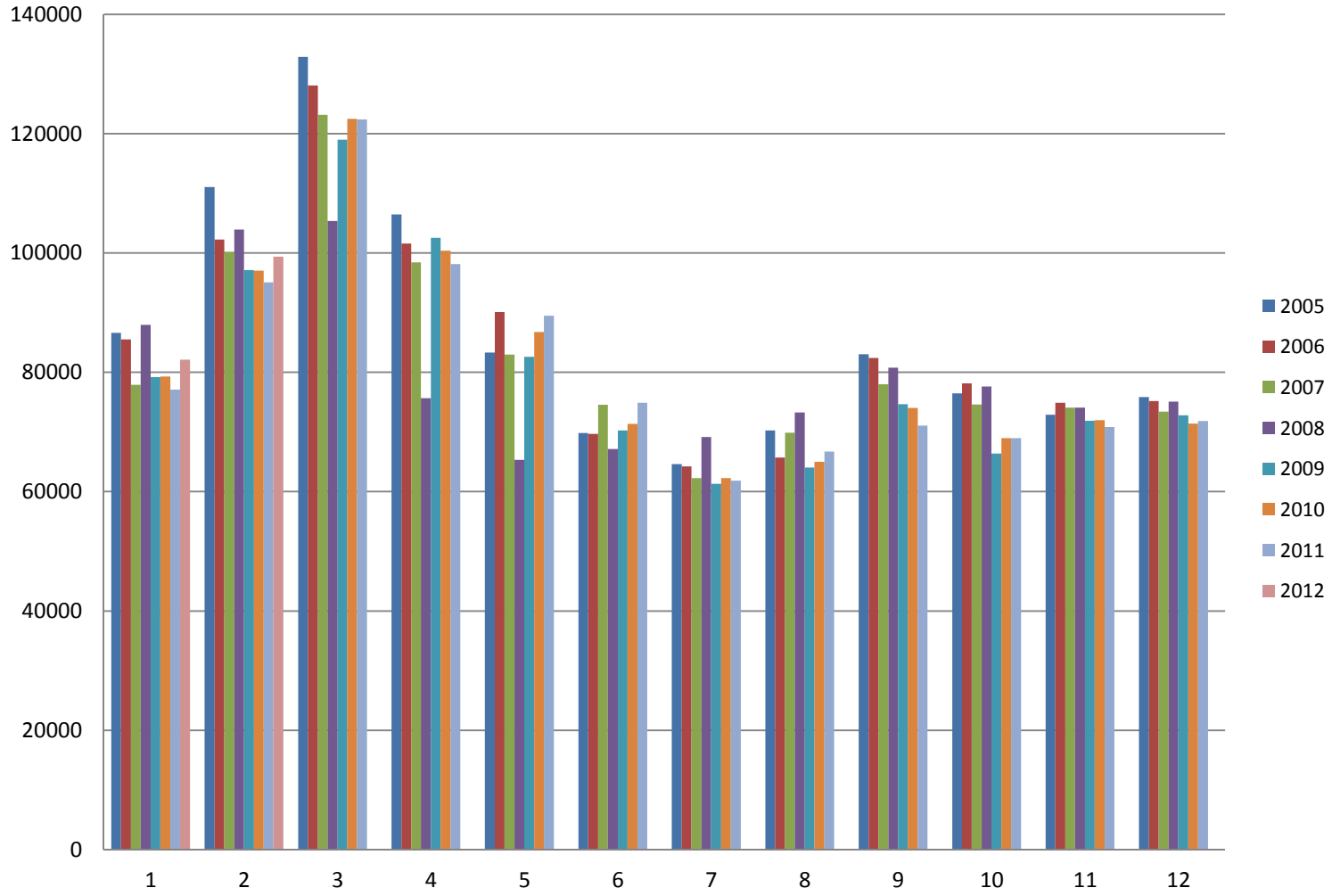


Cattle rendering plant data 2010-2011: mortality temporal clusters

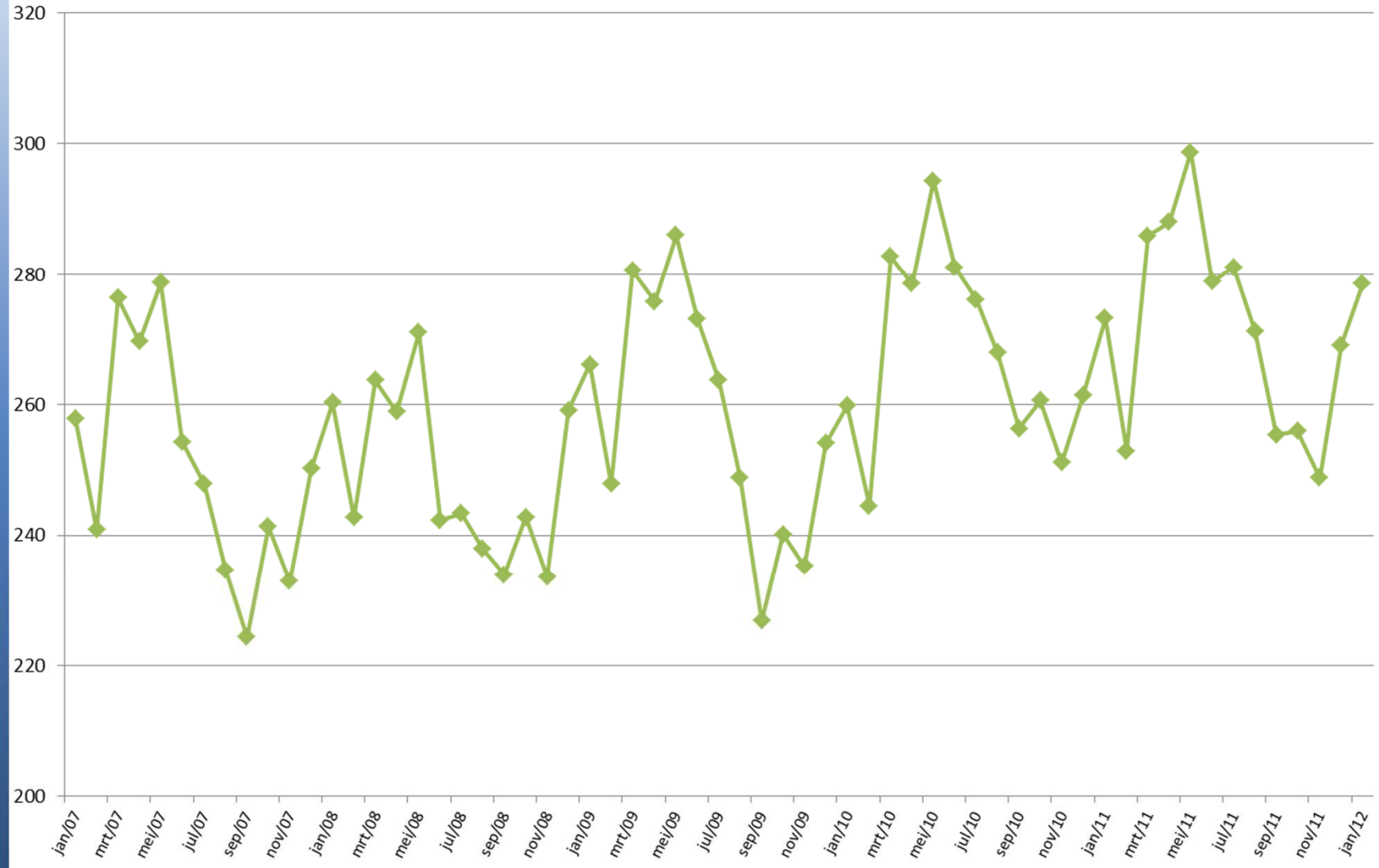


Cattle birth records data 2008-2012

(until feb 2012):



Milk production data 2007-2012 (BE): no apparent decrease



Vector Data

- Vector Monitoring is necessary !
  - Overwintering in vectors?
  - Positive pools of vectors/cullicoides found in Belgium and Denmark

Fertility data-AI

- No reasons to believe until now that SBV has an impact on
  - The number of Ais per cow
  - Number of return to services
  - Number of dystocia

  (pers. Comm of CRV the Netherlands)

- No further information is available !

- To be confirmed

Impact on Commodity/Consumer

- Unlikely that SBV can cause disease in humans [via meat and/or milk] [source EFSA report]
- No further information is available

Further Research
What do we not Know (1)?

- **Evolution of the overall epidemiological situation in the coming months ? As we speak …**
  - ~ Lambing / Calving period (period to breeding)
    - Increase in cases of SBV in cattle from March 2012 is spectacular.
  - ~ Spread of infection

- **Evolution in cattle?**
  - Susceptibility of cattle / Immune status
  - Need for serological surveys (diagnostic assays) in order to estimate that susceptibility
  - Period of susceptibility to infection during the breeding

- **Risk Factors?**
  - Case / control studies

Further Research
What do we not Know (2)?

- **Origin of the initial contamination?**
  = Need for a thorough investigation at European level

- **What about a new virus circulation and its consequences: What in 2012?**

- **Other species besides Ruminants?**

- **Other ways of transmission besides vertical & vector?**
  - **Role of semen/embryo's ?**

Conclusion(s)

- **IMPACT SBV**

  - **FARM/HERD LEVEL** **YES --→ Farmers/Vets = ☹**
  - **POPULATION** **YES = abortions ↑**
  - **FERTILITY** **To be expected**
  - **PRODUCTION LOSSES**
    - **Sheep/Goat: YES (30% within a herd)**
    - **Cattle: TOO EARLY as we speak …**
  - **CONSUMERS** **NO**

Aknowledgements

- **FASFC (BE)**
  - Jozef Hooyberghs, Marc Raemaekers
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