

Teaming up for animal health

Bluetongue in the Netherlands; impact of BTV-3 and BTV-12

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28 March 2025, FESASS, Brussels (Belgium)

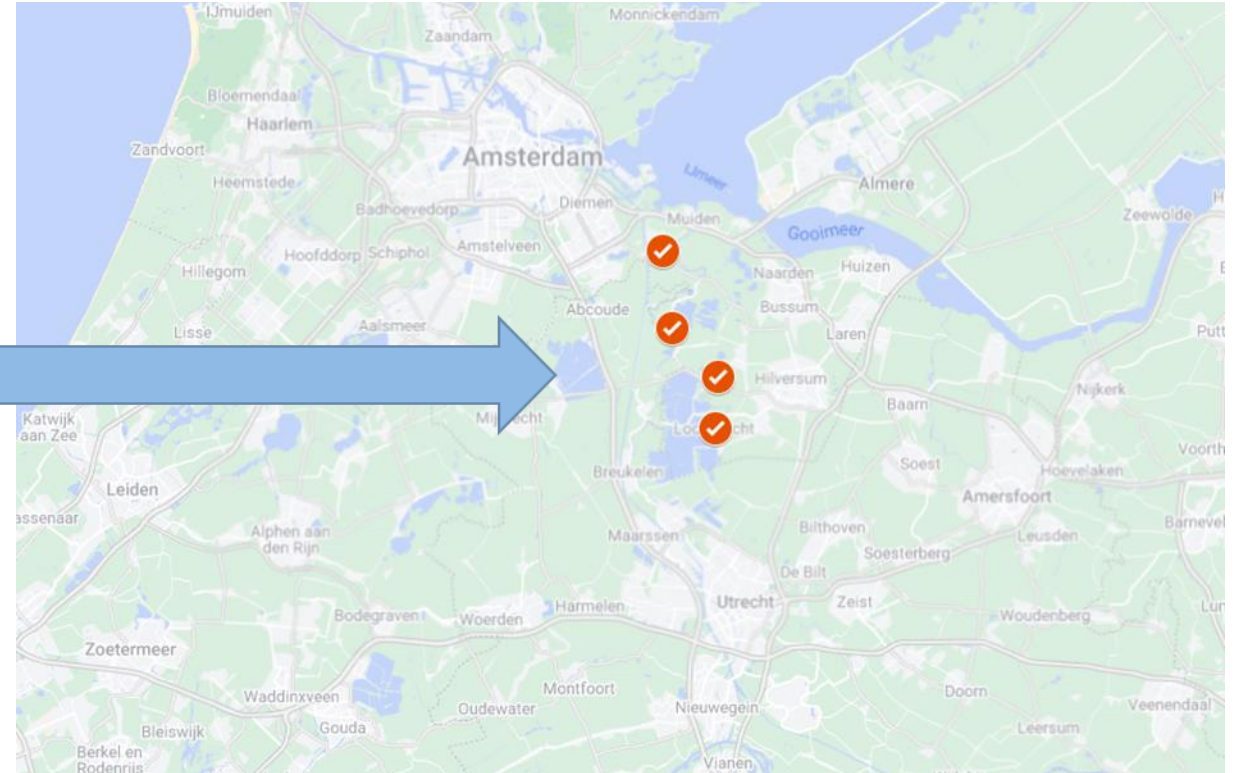
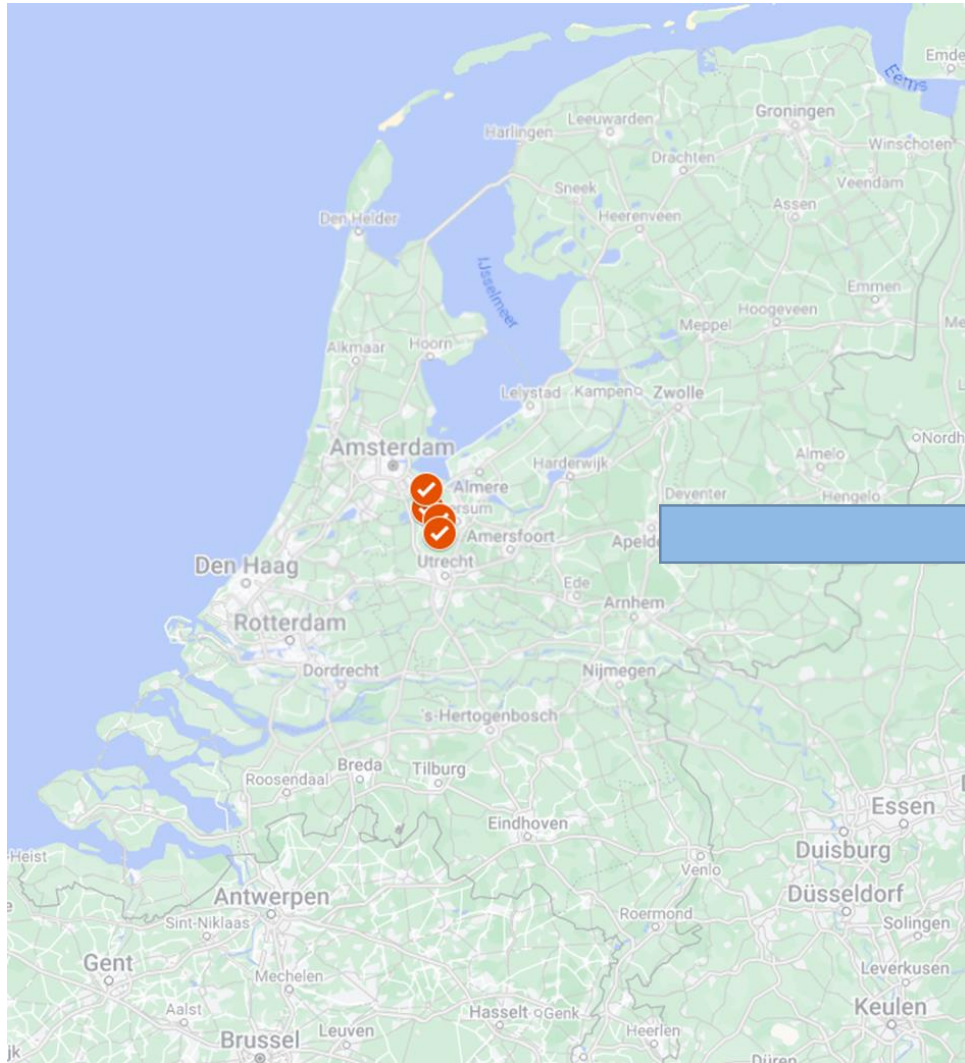


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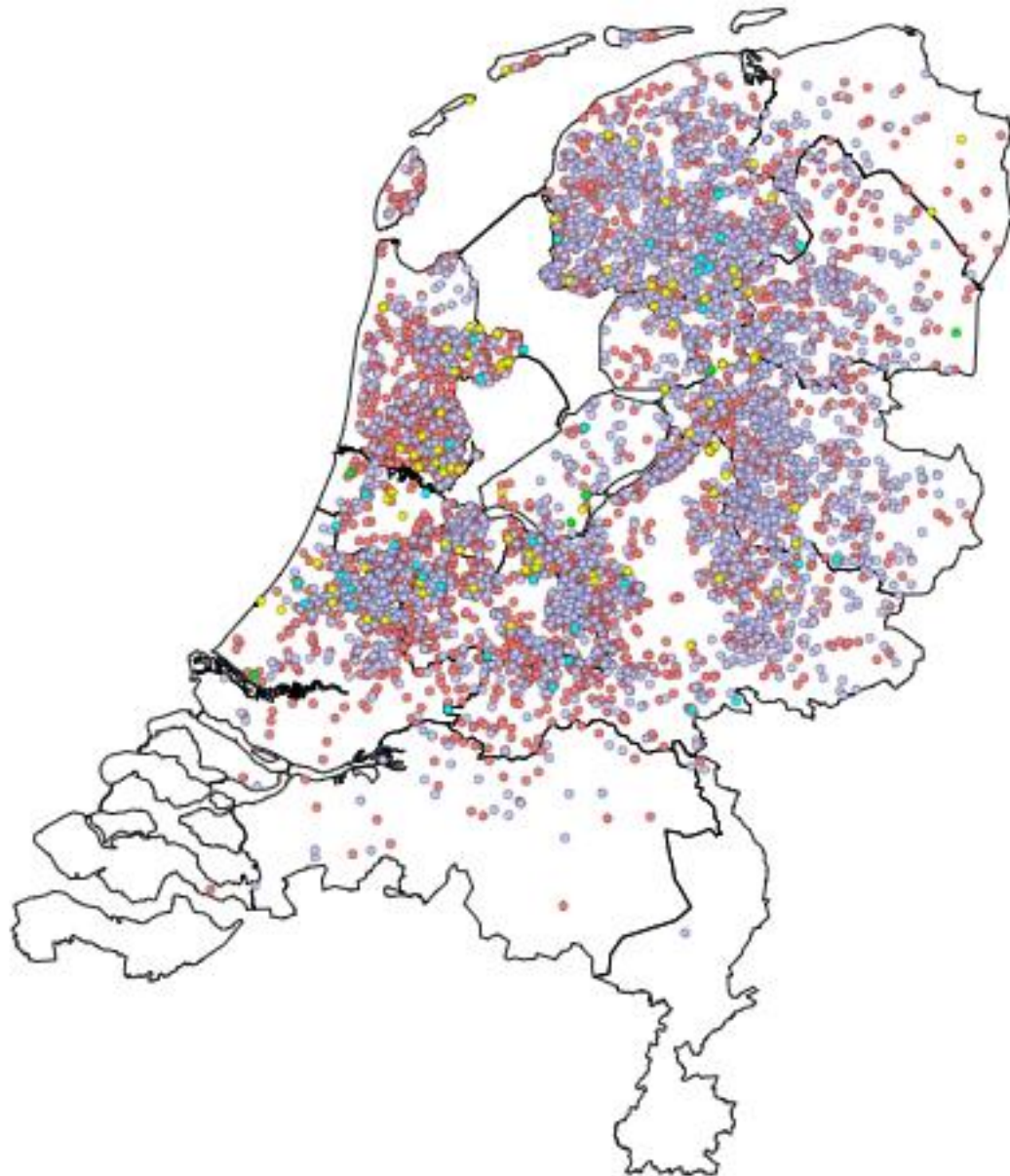
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Bluetongue; the first cases in 2023



(maps: Carlijn ter Bogt-Kappert)

End 2023: 5.396 locations with BTV



What happened in 2024



- May 2024: three BTV-3 vaccines became available
- Mid June: first two cases of BTV-3
- Fast spreading in July and August
- BTV-3 spread fast, infected thousands of farms and again notification of clinical symptoms and mortality
- October: Detection of BTV-12



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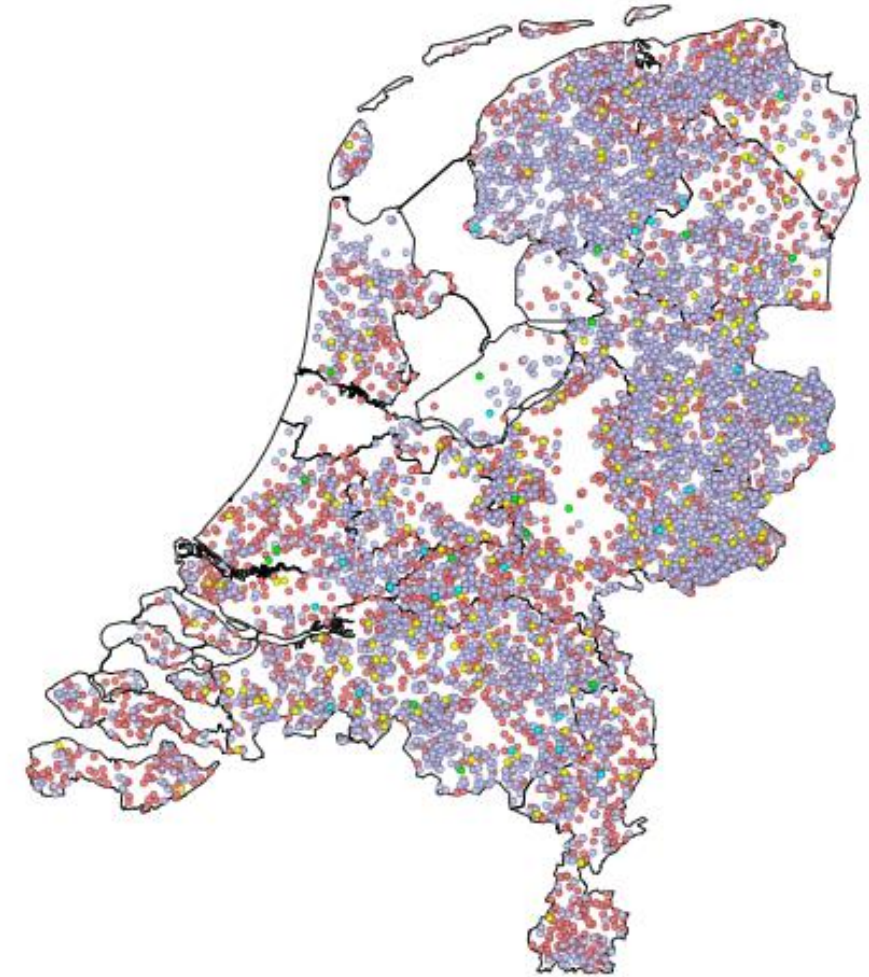
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Bluetongue virus serotype 12 in sheep and cattle in the Netherlands in 2024 – A BTV serotype reported in Europe for the first time

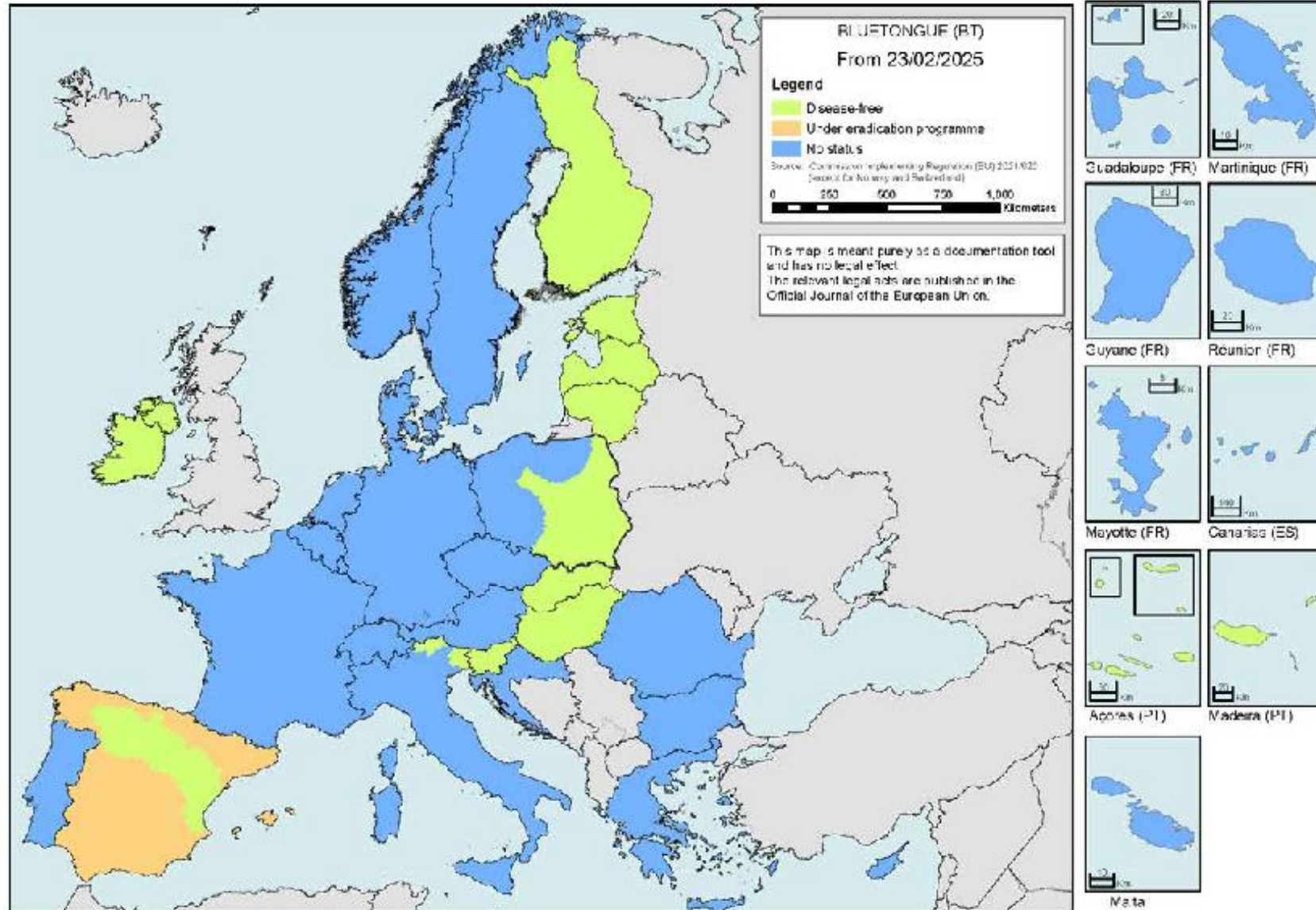
René van den Brom ^a , Inge Santman-Berends ^a, Mark G. van der Heijden ^b, Frank Harders ^c,



8.527 farms with notification of BTV

2024: BTV-3 spreading over Europe

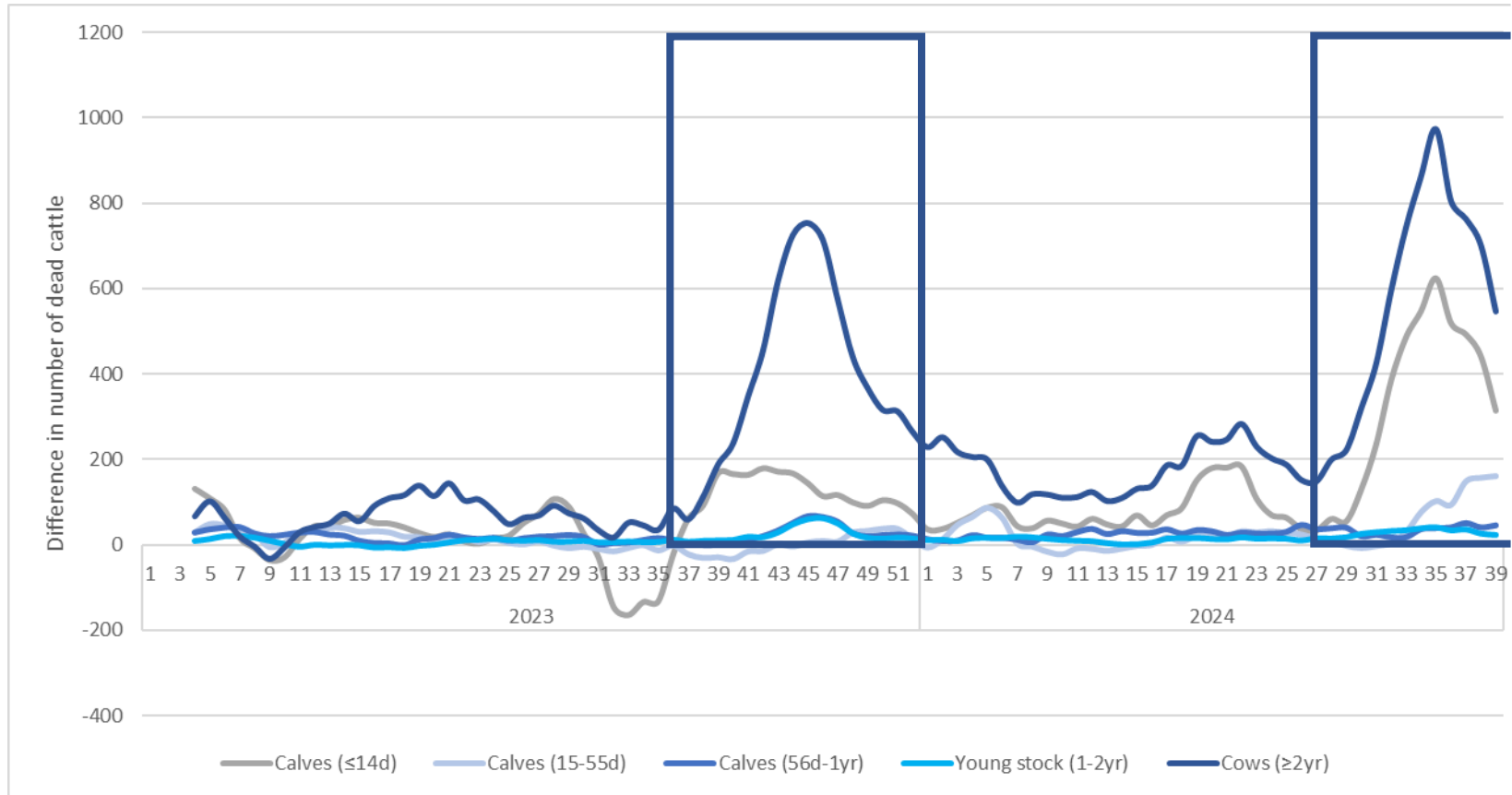
- Belgium
- Germany
- Denmark
- France
- Luxemburg
- UK
- Switzerland
- Austria
- Norway
- Sweden
- Portugal
- Italy
- Czech Republic
- Poland



Impact of BTV-3 on cattle mortality



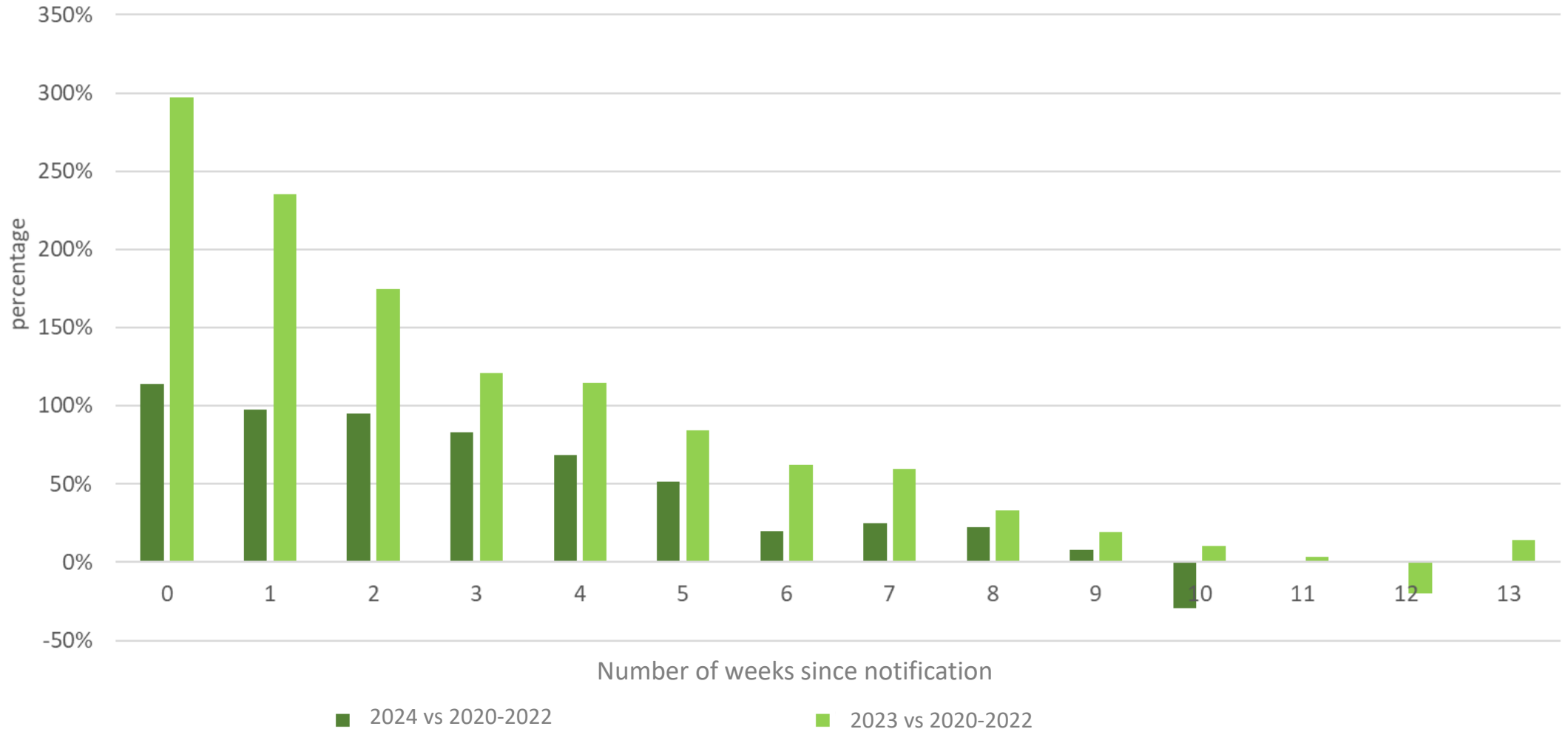
Dairy cattle: difference in raw weekly mortality compared to BTV-3 free years



	W. 25-39 2024
Calves	
<=14 days	4,353
15-55 days	803
56 days - 1 year	500
Young stock (1-2 year)	385
Cows >2 year	7,463
Total	13,503

Mortality in dairy cattle associated with BTV-3 in 2023: ~9,500

Difference in mortality from the moment of notification of BT signs in dairy cattle herds

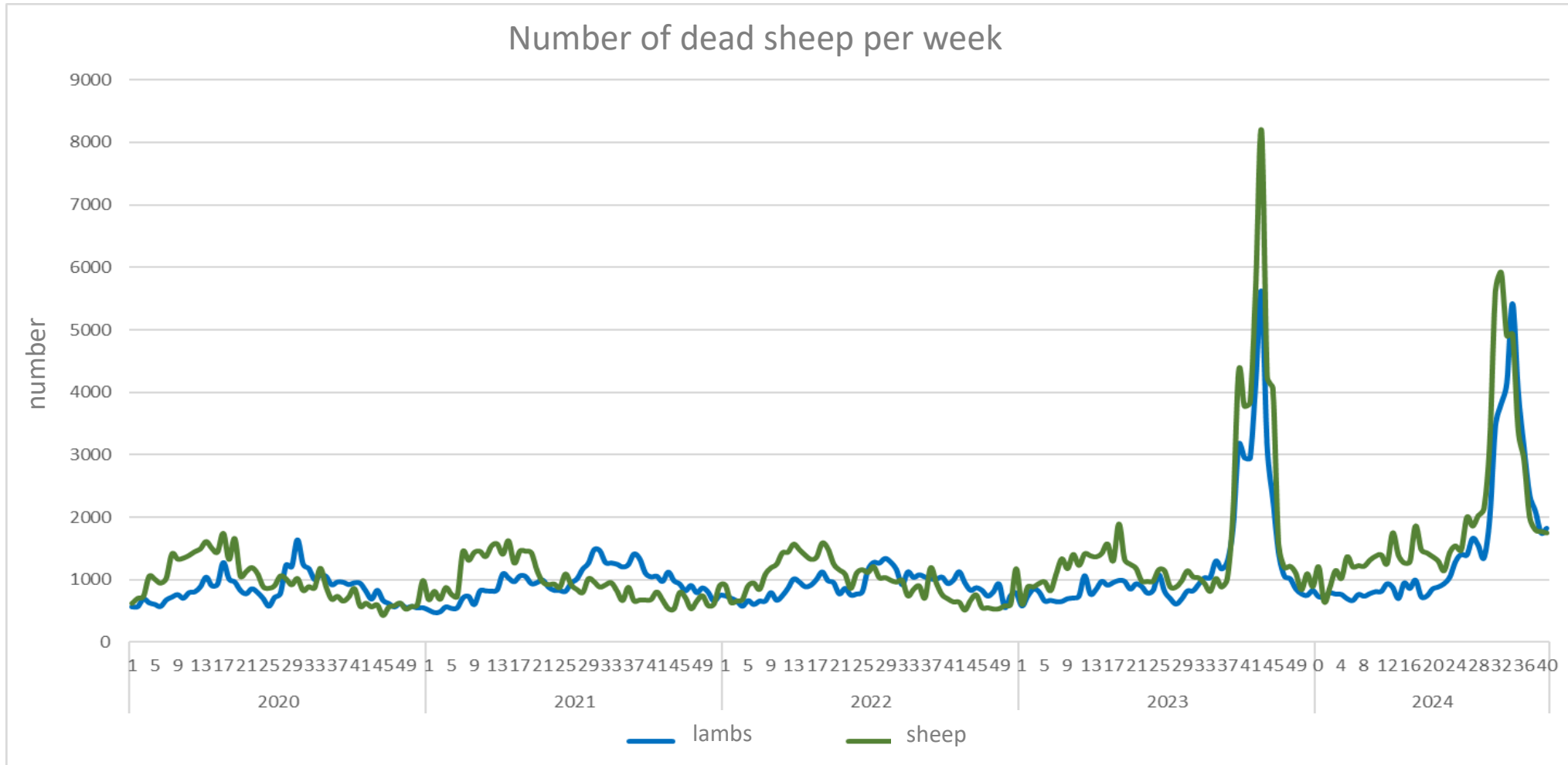


- Sector level
 - BTV-3 spread more rapidly in 2024 than in 2023
 - Total impact in 2024 higher than in 2023
- Herd level
 - Impact dairy cattle \geq 2yrs mortality comparable in 2023 & 2024
 - Calf mortality increased more in 2024 than in 2023
 - Increase in mortality in non-dairy herds was limited
 - Vaccination reduced mortality but could not prevent all mortality
 - Still a slight, significantly increased cattle mortality
 - Mortality in youngstock and calves was no longer increased
 - Acquired immunity against the virus, as well as vaccination, helps reduce the impact

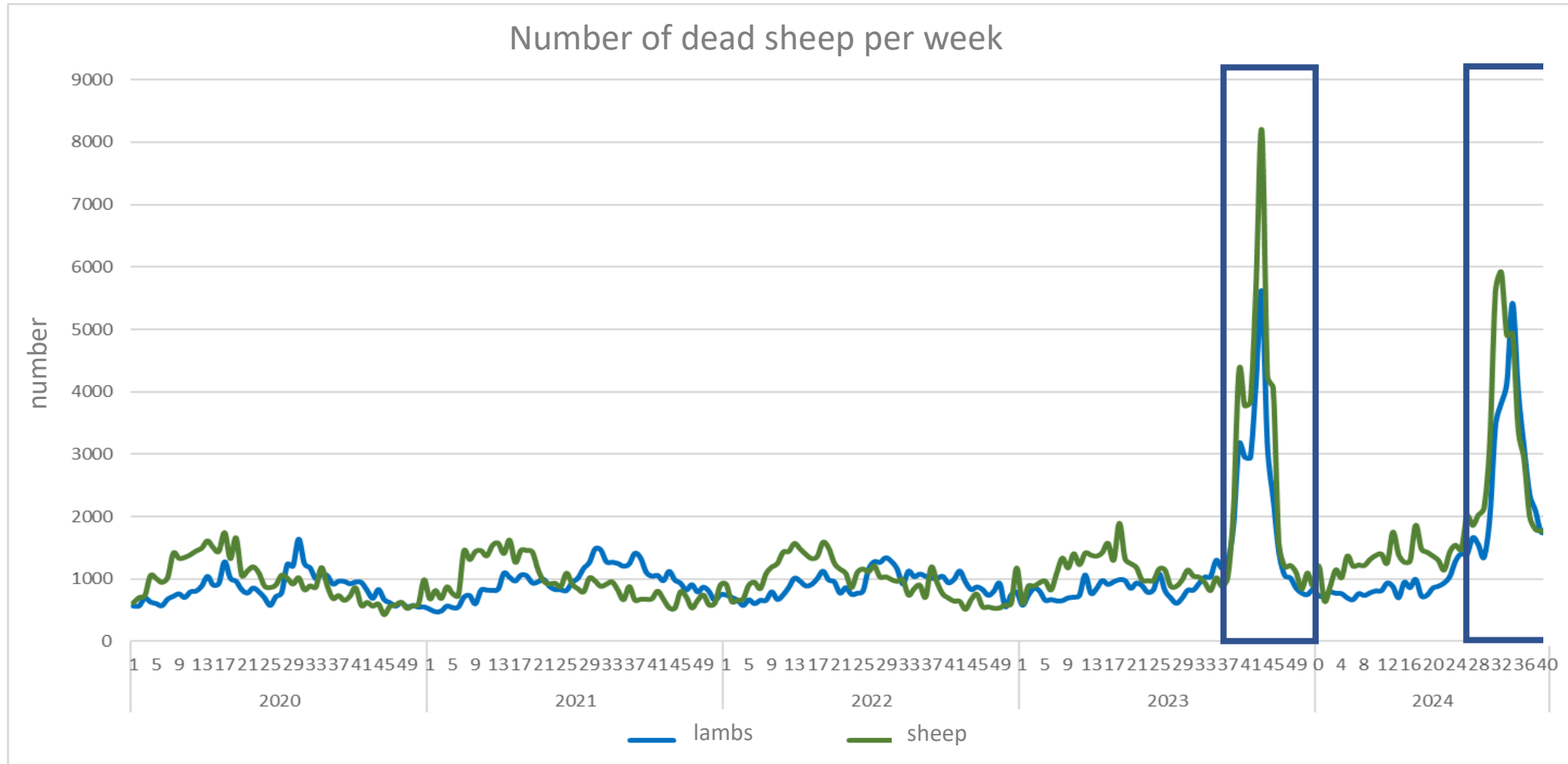
Impact BTV-3 on mortality in small ruminants



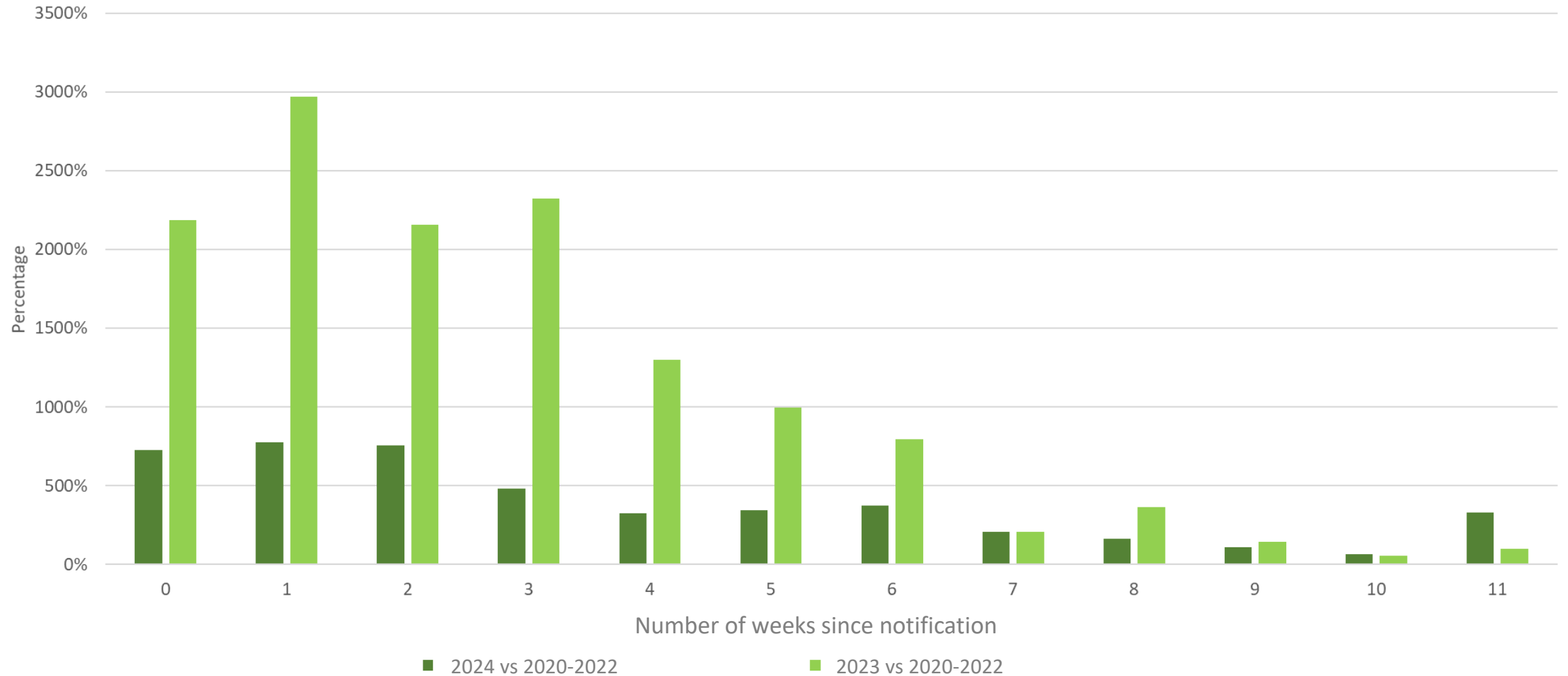
Sheep mortality through time



Sheep mortality through time





Difference in mortality from the moment of notification of BT signs in sheep flock



Sheep mortality (until 18 October 2024)



		Number of sheep (week 40)	Number of dead sheep (week 25-40)
	2020-2022	474,000	13,302
	2024	326,424	41,347
	Difference	-147,576	+28,045
	2020-2022	552,874	10,729
	2024	504,938	47,709
	Difference	-47,936	+36,981
Total difference		-195,512	+65,025

Besides BTV also increased mortality in lambs due to haemonchosis in 2024

Conclusions impact of BTV-3 in 2024



- Sector level
 - BTV-3 spread faster in 2024 compared to 2023
 - Size of sheep population decreased by 20%
 - Impact in 2024 higher compared to 2023 in sheep and goats
- Farm level
 - Impact on mortality in sheep lambs comparable between 2023 & 2024
 - Impact on mortality of adult sheep significantly lower in 2024 compared to 2023
 - Slight increase in goat mortality but only significant in goat lambs
 - Impact of BTV-3 in goat significantly lower compared to impact in sheep

Evaluation of the effect of vaccination on impact is currently studied



Bluetongue serotype 12 in 2024



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Sheep, 1st BTV-12 case



Hobby
White and Blue Texel
Fifty animals
In 2023 high morbidity
and mortality (BTV-3)

Vaccination lambs twice
against BTV-3 (21 June
en 10 August)

BTV-12 PCR positive heifer



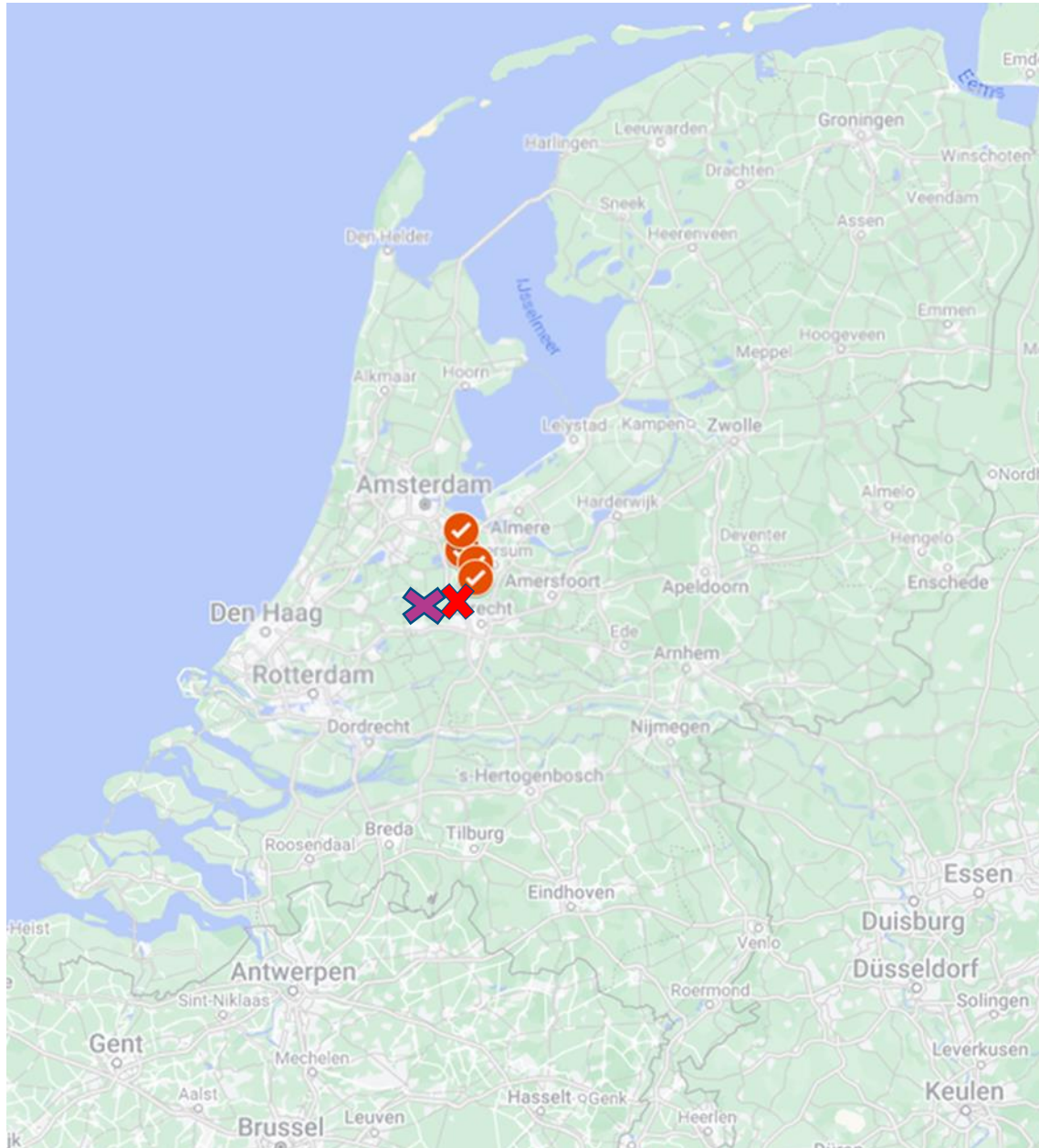
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photo's: M. van der Heijden



Bluetongue serotype 12 in 2024



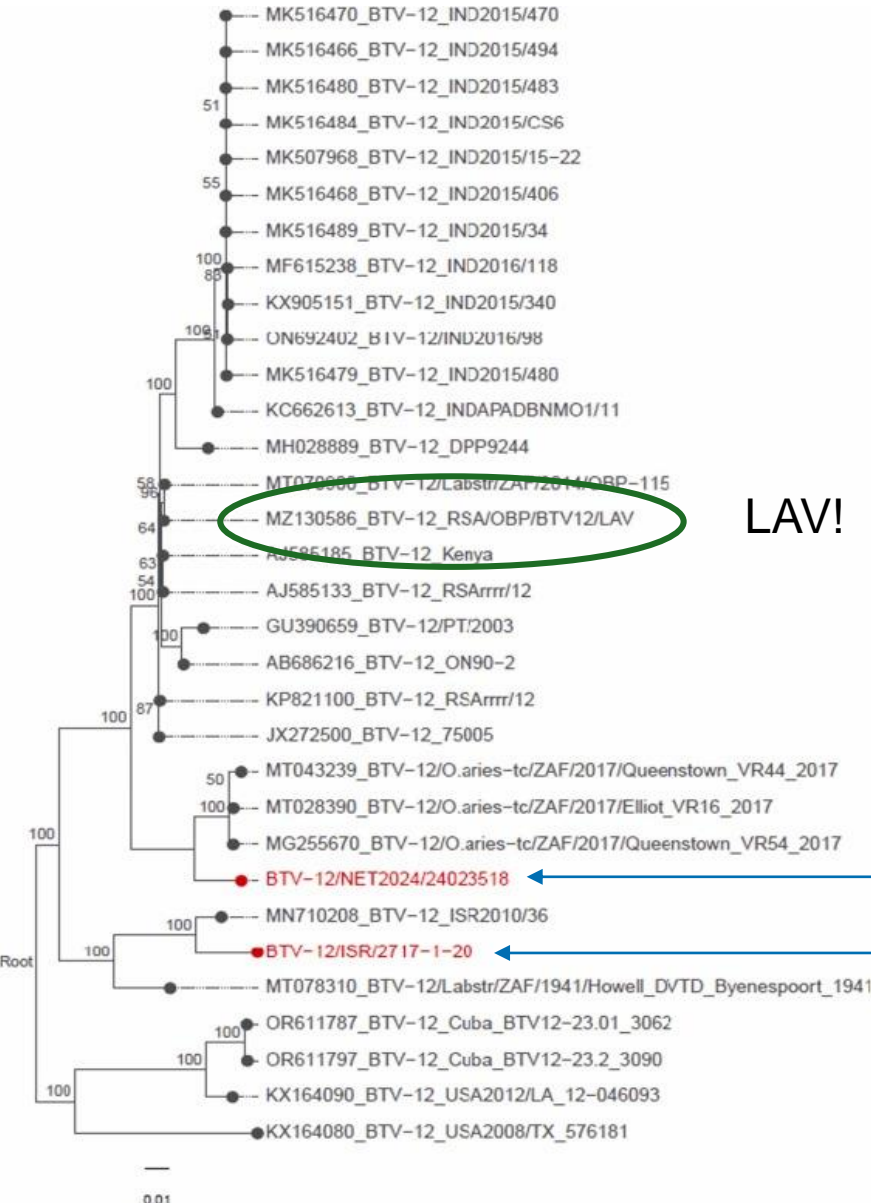
Sheep, 1st BTV-12 case



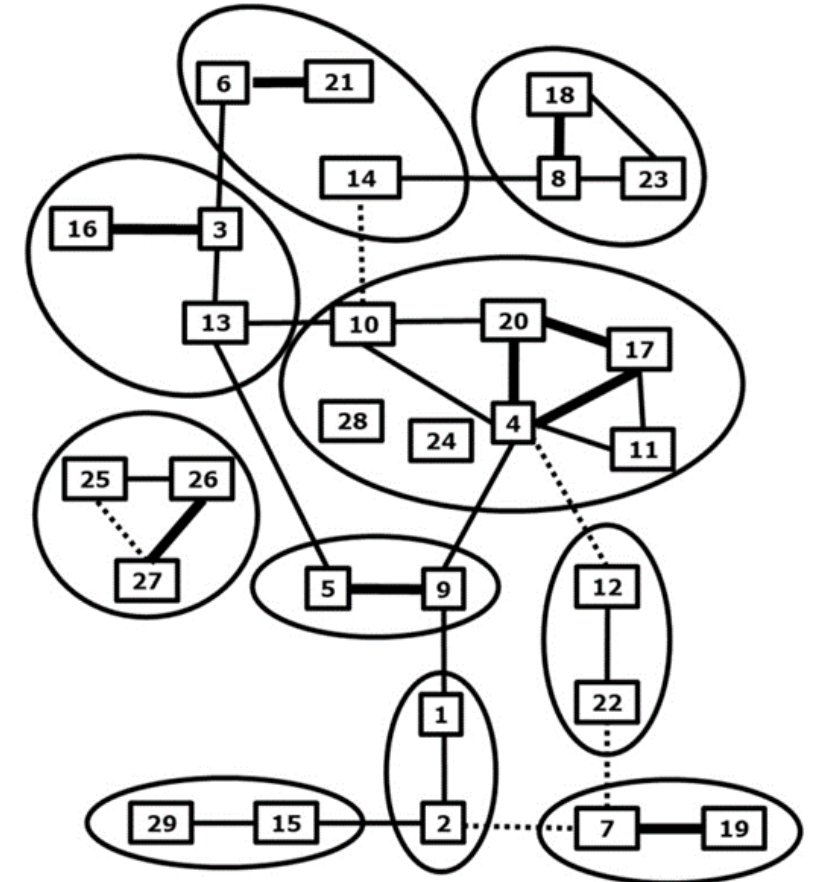
Cattle, 2nd BTV-12 case

Distance between two locations is ~5km

Genotyping segment 2 results (BTV-12)



Dutch BTV-12 isolate
Israeli BTV-12 isolate with high nucleotide homology 7/10 segments



Source: WBVR



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

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journal homepage: www.elsevier.com/locate/vetmic



Bluetongue virus serotype 12 in sheep and cattle in the Netherlands in 2024 – A BTV serotype reported in Europe for the first time

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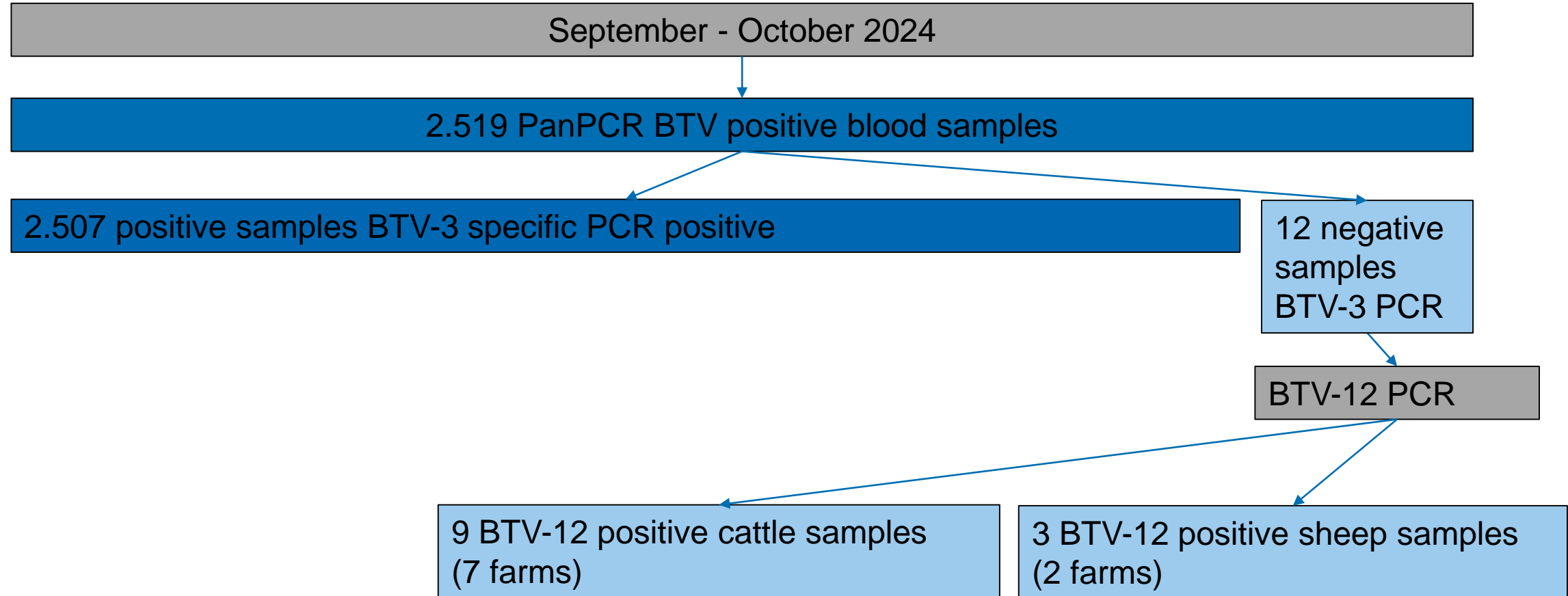
ARTICLE INFO

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Phylogenetic analysis

ABSTRACT

Bluetongue (BT) is a viral vector borne disease primarily affecting ruminants such as sheep, cattle, and goats. On 3 September 2023, the Netherlands reported the first case of bluetongue virus serotype 3 (BTV-3/NET2023), after being BTV free for eleven years. Vaccination with inactivated BT vaccines for serotype 3 has been applied in the Netherlands since May 2024. Nonetheless, in late June/July 2024, BTV-3 re-emerged and spread over large parts of Europe. In October 2024, BTV-12 was identified by follow-up diagnostics after a BTV-3 vaccinated sheep with signs of BT was tested positive for BTV but negative for serotype 3. This marks a significant event, as BTV-12 had never been reported in Europe. Screening of farms in close proximity to the sheep farm and retrospective analysis of samples from clinically affected animals that were non-BTV PCR positive resulted in the detection of

Retrospective screening BTV-12



Location BTV-3 and BTV-12 infected farms

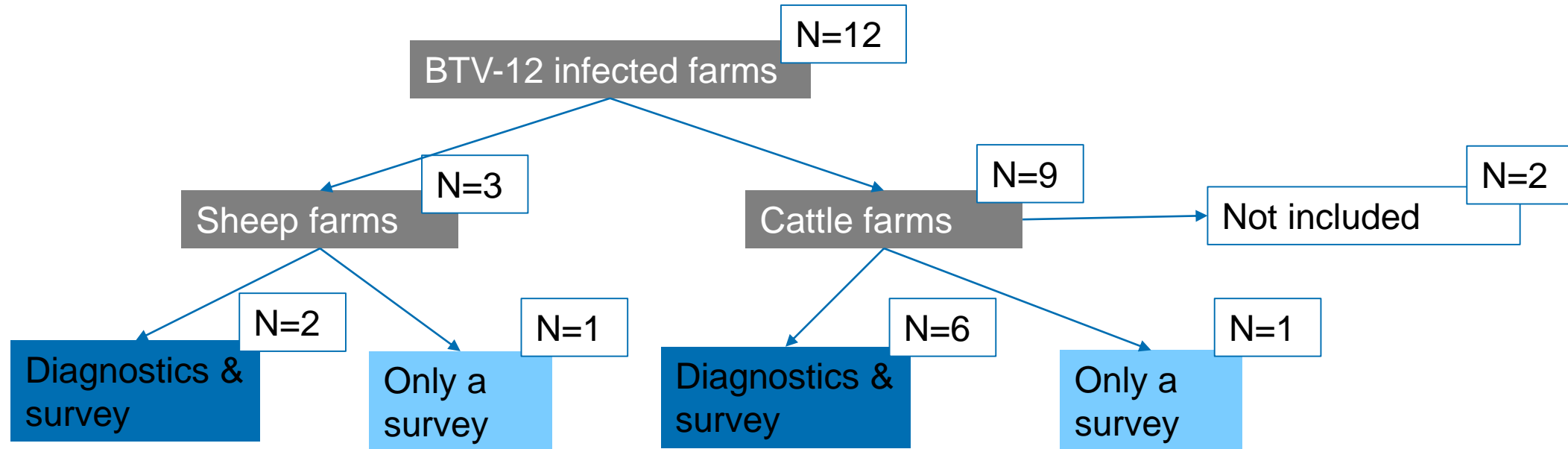


- BTV-3 infected
- BTV-12 in cattle
- ▲ BTV-12 in sheep
- ▲ BTV-12 index sheep farm

Source: NVWA (2024)

Aims:

- Determine within-farm prevalence of BTV-12 and BTV-3
- Evaluate clinical symptoms associated with bluetongue





- 1.415 blood samples (12 farms)
- Total BTV-12 prevalence of 2,7%

Sheep farms

- One BTV-12 positive animal per farm
 - All farms were BTV-3 infected
 - No animals co-infected with both serotypes

Cattle farms

- 1-13 positive animals per farm (0,4-9,7%)
 - Seven out of nine were BTV-3 positive
 - 1-3% BTV-12 positive animals on BTV-3 negative farms
 - Two animals co-infected BTV-12 and BTV-3



Clinical symptoms BTV-3 and BTV-12



Sheep farms

- One BTV-12 positive animal per farm
 - All farms were BTV-3 infected
 - No animals co-infected with both serotypes
- Most seen clinical symptoms:
 - Fever
 - Anorexia
 - Emaciation
 - Dullness
 - Lameness
 - Death

Cattle farms



- Within herd 2-66% clinical symptoms
 - Two farms without BTV-3 infection
 - 2-3% within herd clinical symptoms; comparable with BTV-3 infected farms*
 - Two animals co-infected with BTV-12 and BTV-3
- Most seen clinical symptoms:
 - Decreased milk yield
 - Anorexia
 - Lameness
 - Premature and/or small born calves

**Prevalence and clinical study on sheep, goat and cattle farms with BTV-3 outbreak in 2023*





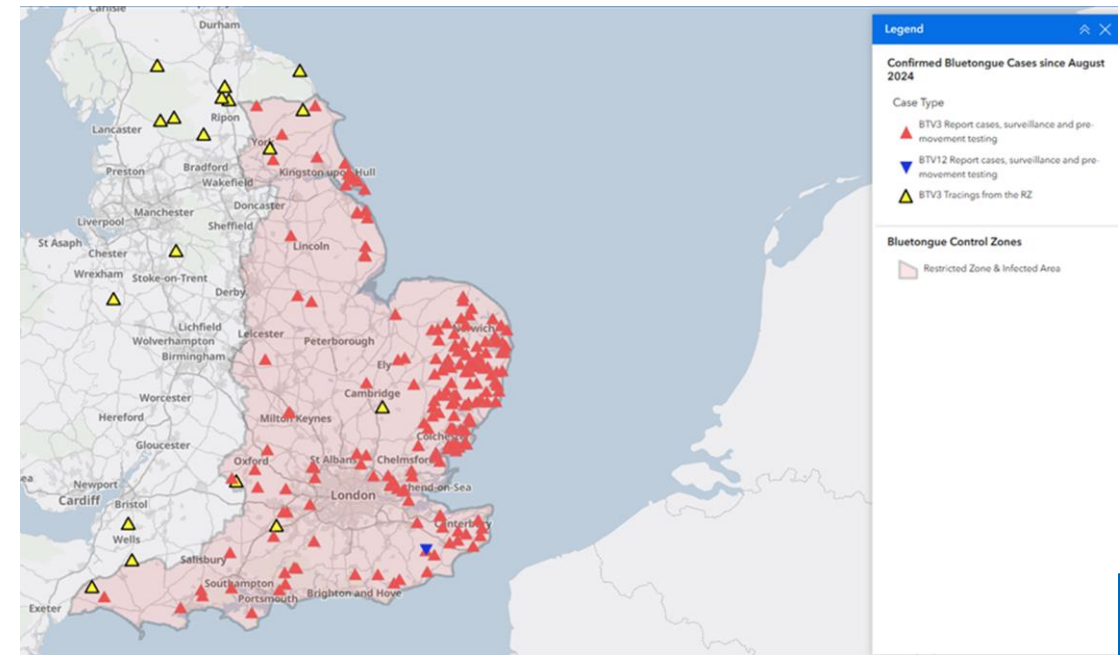
- Limited BTV-12 within-herd prevalence in sheep and cattle
 - Indication of less efficient spread of BTV-12
- Co-infection with BTV-3 and BTV-12 is possible
 - Risk of reassortment of gene segments
- Limited farms (N=2) without BTV-3 infection
 - No conclusion on BTV-12 specific clinical symptoms
- Clinical symptoms 2024 comparable with previous studies conducted in the Netherlands





- BTV-3 besmetting
- ▲ BTV-12 in schapen
- BTV-12 in rundvee
- ▲ BTV-12 index schapenbedrijf

Source data: NVWA
Van den Brom et al., 2025



What to expect regarding BTV-12?



- Incidence relatively low
- Prevalence per farm relatively low
- Seems to behave as BTV-6 in 2008?
- Vector competence?
- Reassortments
- Detected in UK; what does this mean regarding the presence in Europe?
- Field strain (BTV-12) versus LAV strain (BTV-6)





Thank you for your attention!



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In collaboration with:



With thanks to the participating
farmers and veterinary practices.



Monitoring Animal Health