

Bluetongue in Italy

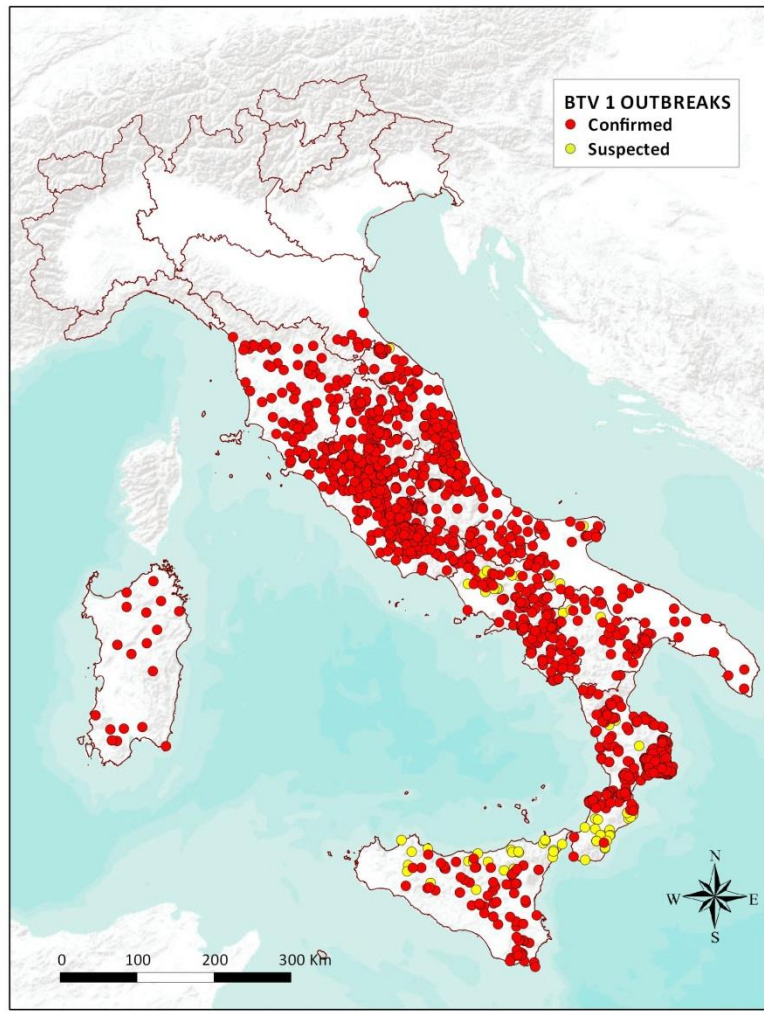
22/05/2015



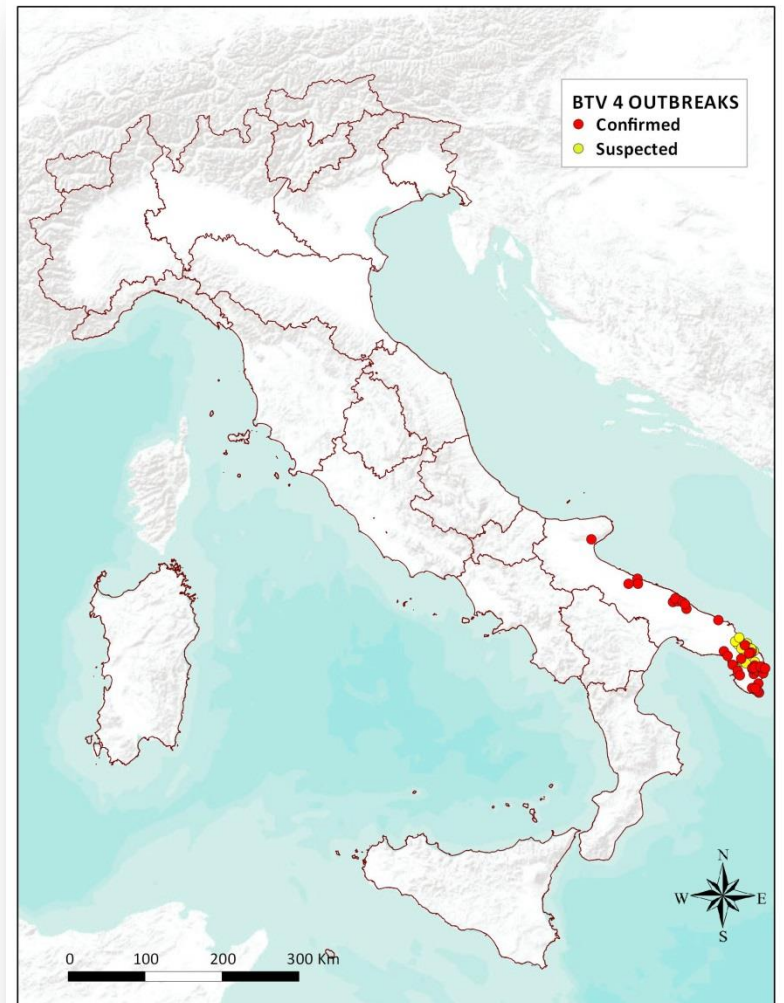
BT- Epidemiological situation in Italy

BTV 1 and BTV 4 outbreaks – 2014

BTV 1



BTV 4



BT- Epidemiological situation in Italy outbreaks - 2014

Region	Serotype	Confirmed outbreak	Cattle/buffaloes							Sheep/goats						
			No. confirmed outbreaks	Susceptible	Cases	Clinically affected	Deaths	Morbidity (%)	Mortality (%)	No. confirmed outbreaks	Susceptible	Cases	Clinically affected	Deaths	Morbidity (%)	Mortality (%)
			1	2	3	4	5	3/2	5/2	1	2	3	4	5	3/2	5/2
ABRUZZO	BTV 1	148	49	2030	212	9	1	10.4%	0.0%	99	18175	327	292	112	1.8%	0.6%
BASILICATA	BTV 1	47	18	1233	58	7	0	4.7%	0.0%	29	4053	127	100	59	3.1%	1.5%
CALABRIA	BTV 1	359	77	3679	323	15	0	8.8%	0.0%	282	61201	10371	7210	2339	16.9%	3.8%
	BTV 2	2	1	39	2	0	0	5.1%	0.0%	1	113	1	0	0	0.9%	0.0%
CAMPANIA	BTV 1	138	97	4338	463	157	0	10.7%	0.0%	41	4824	136	102	11	2.8%	0.2%
EMILIA ROMAGNA	BTV 1	25	13	790	61	0	2	7.7%	0.3%	12	635	26	4	3	4.1%	0.5%
LAZIO	BTV 1	335	48	4444	167	2	0	3.8%	0.0%	287	68517	3614	3115	2373	5.3%	3.5%
MARCHE	BTV 1	90	32	1639	76	1	0	4.6%	0.0%	58	15512	1320	708	793	8.5%	5.1%
MOLISE	BTV 1	35	30	1792	100	0	0	5.6%	0.0%	5	733	26	14	22	3.5%	3.0%
PUGLIA	BTV 1	63	56	1996	74	0	0	3.7%	0.0%	7	1270	67	62	19	5.3%	1.5%
	BTV 4	38	32	973	43	0	0	4.4%	0.0%	6	1203	25	20	3	2.1%	0.2%
SARDINIA	BTV 1	20	5	383	8	1	0	2.1%	0.0%	15	4686	141	20	14	3.0%	0.3%
SICILY	BTV 1	82	71	5592	212	2	0	3.8%	0.0%	11	1430	51	48	39	3.6%	2.7%
TUSCANY	BTV 1	91	44	3606	157	0	0	4.4%	0.0%	47	8981	261	242	57	2.9%	0.6%
UMBRIA	BTV 1	131	14	896	57	0	0	6.4%	0.0%	117	18460	677	657	401	3.7%	2.2%
TOTAL		1604	587	33430	2013	194	3	6.0%	0.0%	1017	209793	17170	12594	6245	8.2%	3.0%





Vaccination – 2014

Region	Serotype	Cattle and buffaloes	Sheep and goats
ABRUZZO	BTV1	40	10 425
	BTV1-BTV8	89	851
BASILICATA	BTV1-BTV8	6 499	17 070
CALABRIA	BTV1-BTV8	5 681	334
CAMPANIA	BTV1	22	-
	BTV1-BTV8	546	29
LAZIO	BTV1	377	757
	BTV1-BTV8	16 599	66 843
LIGURIA	BTV1	78	-
	BTV1-BTV8	1 336	257
MARCHE	BTV1	47	3 115
SARDINIA	BTV1	62 150	965 853
	BTV1-BTV8	11 581	858 648
SICILY	BTV1-BTV8	2 284	344
TUSCANY	BTV1	276	5
	BTV1-BTV8	2 361	2 512
UMBRIA	BTV1	1 376	739
TOTAL		111 342	1 927 782



BT- Epidemiological situation in Italy

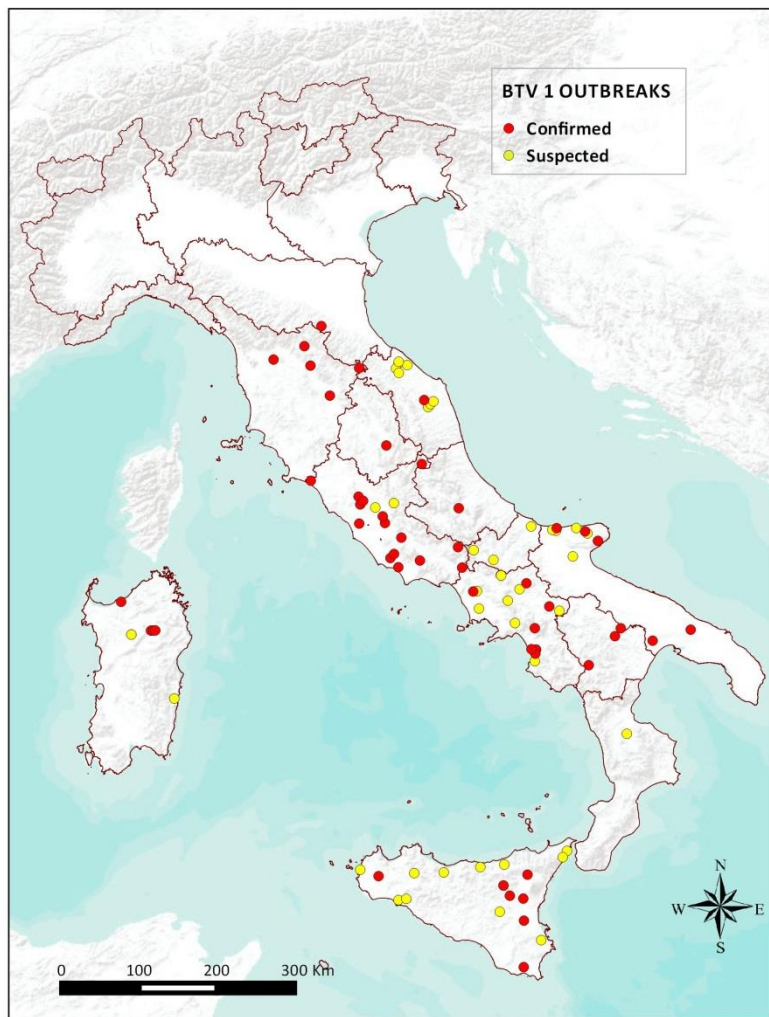
BTV 1 and BTV 4 occurrence

1/01/2015-22/05/2015

BTV 1

All cases are related to seroconverted animals

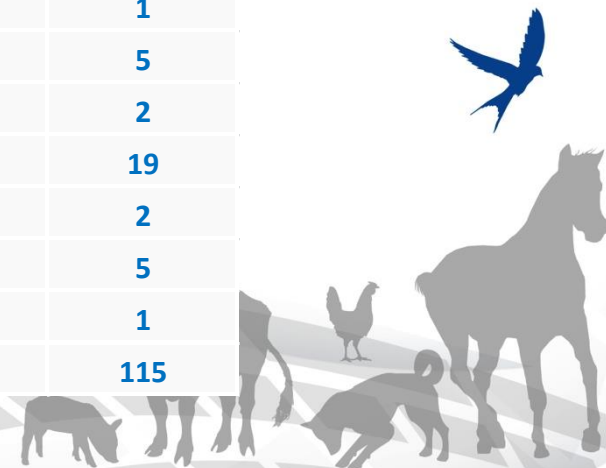
BTV 4



BT- Epidemiological situation in Italy

1/01/2015-22/05/2015

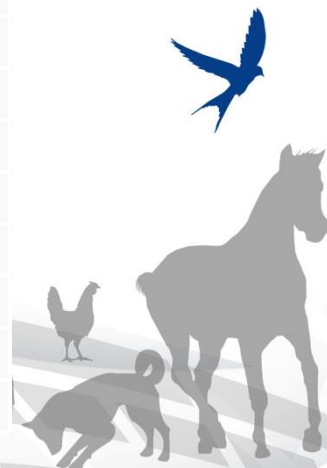
Region	Serotype	Confirmed	Suspected	Total
ABRUZZO	BTV 1	1		1
BASILICATA	BTV 1	3		3
CALABRIA	BTV 1		1	1
CAMPANIA	BTV 1	8	7	15
	Serotyping is ongoing		2	2
EMILIA ROMAGNA	BTV 1	1		1
LAZIO	BTV 1	14	2	16
MARCHE	BTV 1	1	4	5
	Serotyping is ongoing		4	4
MOLISE	BTV 1		3	3
PUGLIA	BTV 1	5	4	9
	BTV 4	18	2	20
	Serotyping is ongoing		1	1
SARDINIA	BTV 1	4	1	5
	Serotyping is ongoing		2	2
SICILY	BTV 1	8	11	19
	BTV 2		2	2
TUSCANY	BTV 1	5		5
UMBRIA	BTV 1	1		1
TOTAL		69	46	115



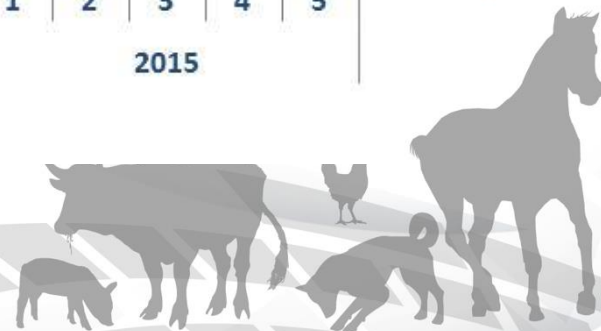
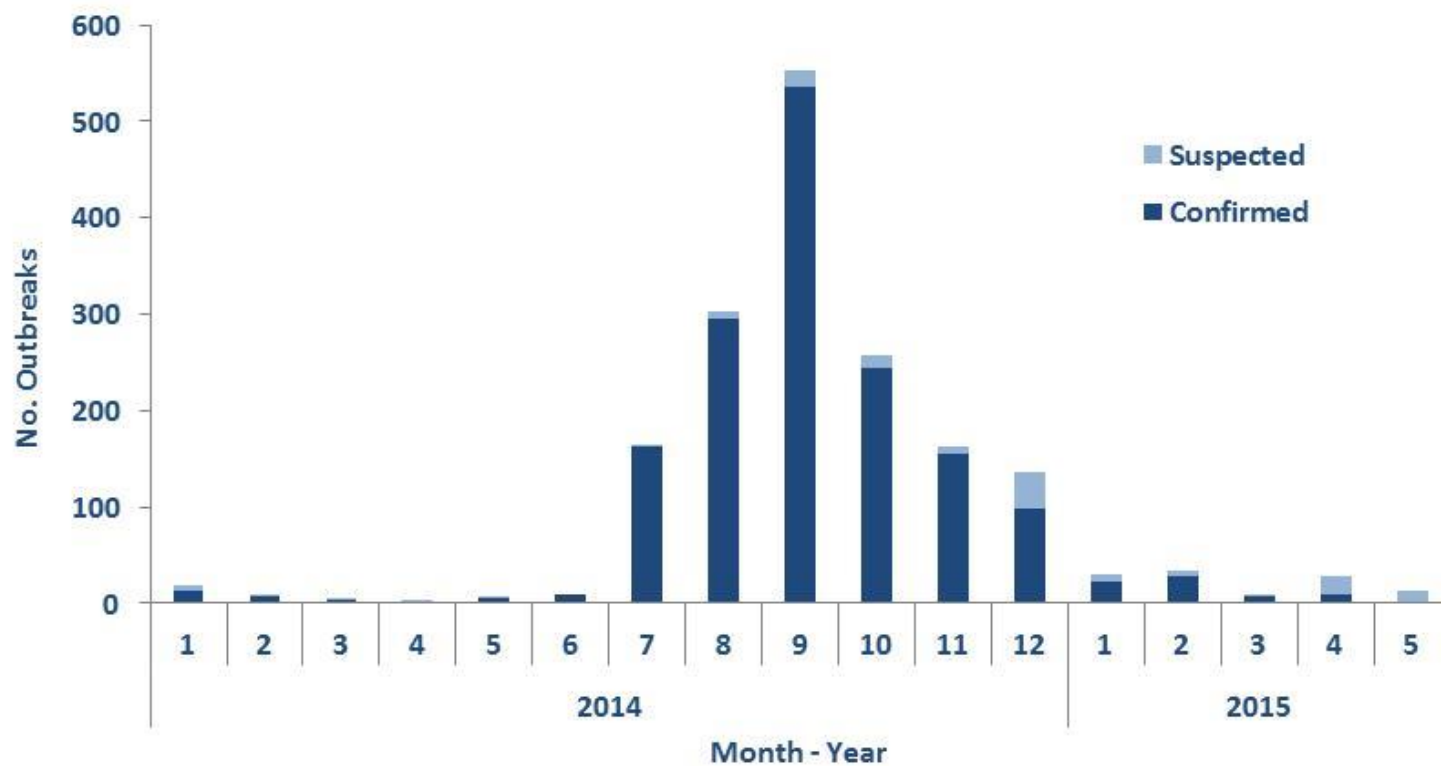
Vaccination

1/01/2015 – 22/05/2015

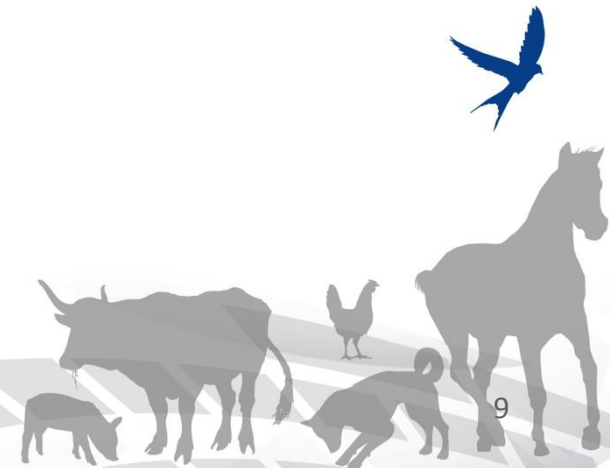
Region	Serotype	Cattle and buffaloes	Sheep and goats
ABRUZZO	BTV1	25	20 304
BASILICATA	BTV1	31	1 032
CAMPANIA	BTV1-BTV8	6	-
EMILIA ROMAGNA	BTV1	4 889	24 872
LAZIO	BTV1	47	-
LIGURIA	BTV1	283	205
MARCHE	BTV1	18 359	59 405
PUGLIA	BTV2-BTV4	1 089	-
	BTV1	1 089	-
SARDINIA	BTV1	14 635	487 993
	BTV1-BTV8	3 641	471 364
SICILY	BTV2-BTV4	454	92
	BTV1	614	97
TUSCANY	BTV1	203	7
UMBRIA	BTV1	36 320	86 048
TOTAL		81 685	1 151 419



Temporal distribution of BT outbreaks in 2014 and 2015



BTV Surveillance Programme



Bluetongue Surveillance Programme in Italy



✓ Based on:

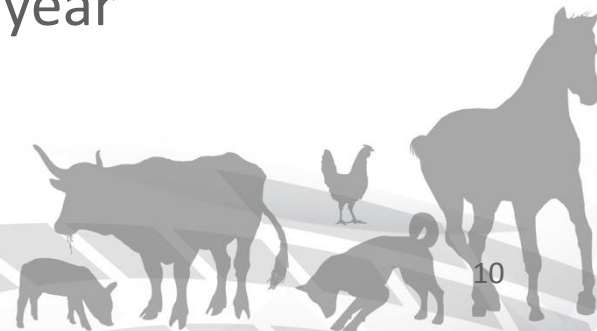
- **Surveillance on sentinel animals**

Large number of sentinel animals monthly tested across the whole country

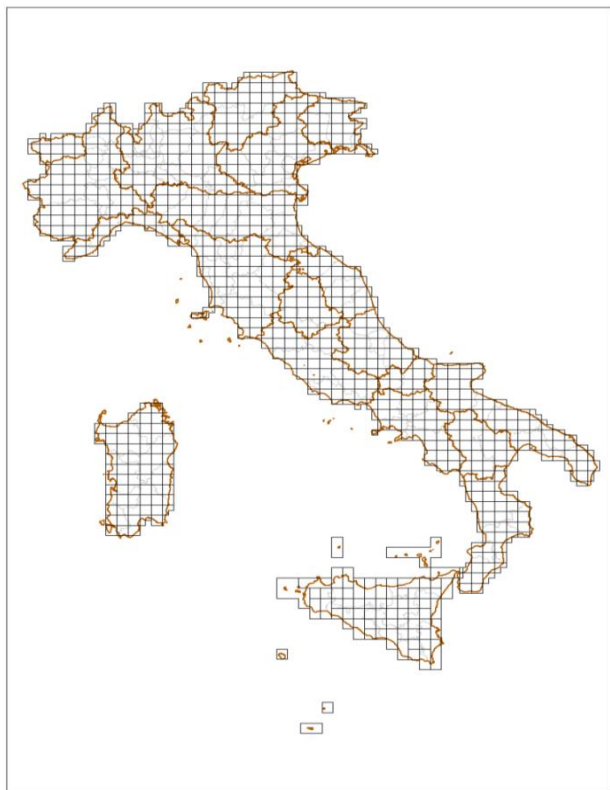


- **Entomological surveillance**

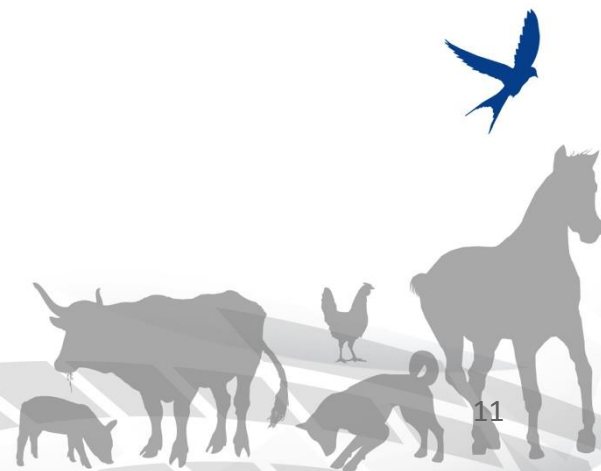
A net of *Culicoides* black-light traps weekly operated all over the year



Bluetongue: Surveillance on sentinel animals



- In place since **2002**
- The Italian territory has been divided in **20 x 20 km square grids**
- In each square, around **58 animals** are selected and used as **sentinel animals**

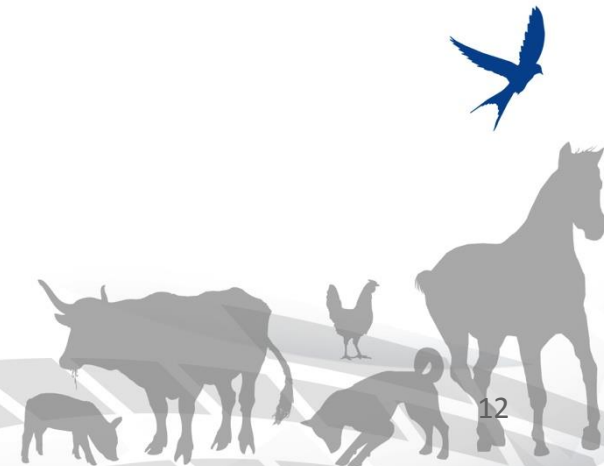


Surveillance on sentinel animals

Geographical distribution of sentinel holdings



It is a surveillance system which includes more than **30,000 animals**



Surveillance on sentinel animals



They are **monthly bled** and tested by **c-ELISA**. Positive samples are confirmed by **virus neutralization assay^(*)**.

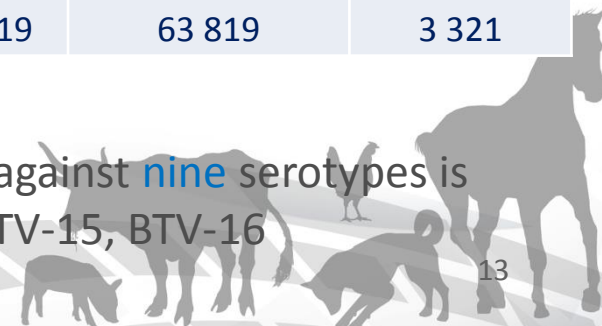
From positive animals EDTA blood samples are also tested by **RT-PCR**.

An automatic procedure scans these results to identify **potential seroconversions**.


Laboratory tests performed on sentinel animals (cattle, sheep and goats) in Italy

Year	No. of tested animals	No. of ELISA tests	No. of virus neutralization tests	No. of RT-PCR
2009	62 705	476 327	105 472	6 577
2010	53 915	397 347	30 734	1 664
2011	51 068	361 736	20 952	1 012
2012	39 677	266 959	11 277	1 156
2013	35 657	255 436	25 585	1 304
2014	31 352	243 519	63 819	3 321

(*) For each sample tested by VN, the presence of antibodies against **nine** serotypes is checked: BTV-1, BTV-2, BTV-4, BTV-6, BTV-8, BTV-9, BTV-14, BTV-15, BTV-16

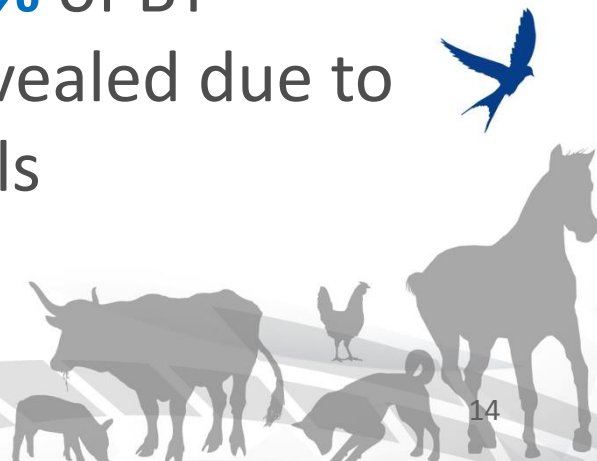


Bluetongue: Surveillance on sentinel animals



In all these years the sentinel system has been a **very effective and sensitive tool**, crucial for detecting BTV circulation in Italy

In 2014 around **33%** of BT outbreaks were revealed due to the sentinel animals



Entomological surveillance system

Year	No. <i>Culicoides</i> collections
2009	7 834
2010	9 059
2011	9 799
2012	6 806
2013	6 735
2014	8 521



The entomological surveillance system is used for defining seasonally free areas and to monitor vector dynamics

Bluetongue: the Italian restricted zones

An accurate and comprehensive **analysis of the Italian BT situation** of the last two years was carried out to verify the possible compliance with the provisions of Commission Regulation (EC) No 1266/2007 for the Italian **restricted zones** and, where possible, to **update the actual map** of circulating BTV serotypes



Bluetongue: the Italian restricted zones



BTV-1 and BTV-4 were the mainly circulating serotypes.


Some seroconverted animals were **erroneously confirmed** for other serotypes, although these positive results were elicited by **cross reaction phenomena**.

For these cases (35 animals in 2013 and 5 in 2014) a correction procedure has been requested to ADNS.



Bluetongue: the Italian restricted zones

BTV16

- 
- In 2004 **millions of animals were vaccinated** against serotype 16 with a modified live vaccine (**MLV-16**) in Sardinia and in southern regions
 - The MLV-16 was responsible for **clinical disease** in vaccinated animals, and was **suspended** shortly afterwards
 - It has been demonstrated that the BTV-16 strain used in the vaccine was **inadequately attenuated**

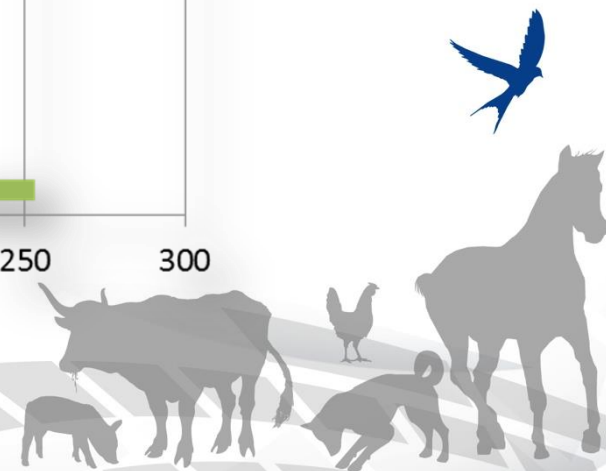
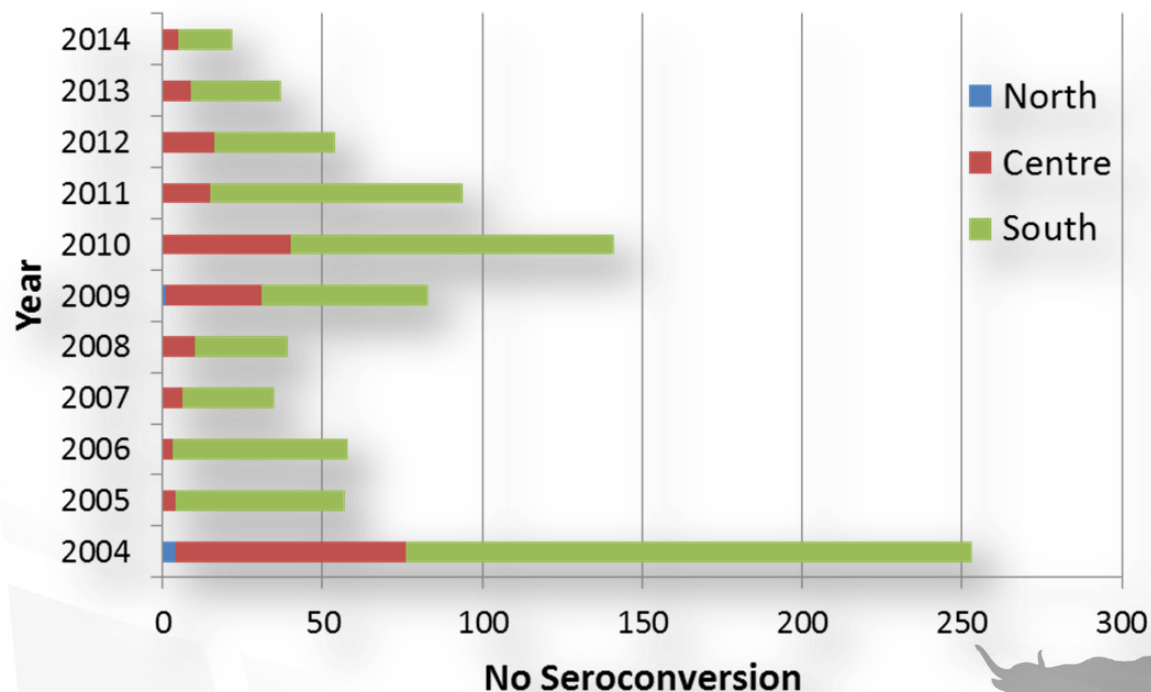


Bluetongue: the Italian restricted zones

BTV16

Number of sentinel animals which have seroconverted to BTV-16 in each Italian macro-region (NUTS1) from 2004 to 2014.

After 2004, when vaccination against BTV-16 was discontinued, clinical signs were never observed.



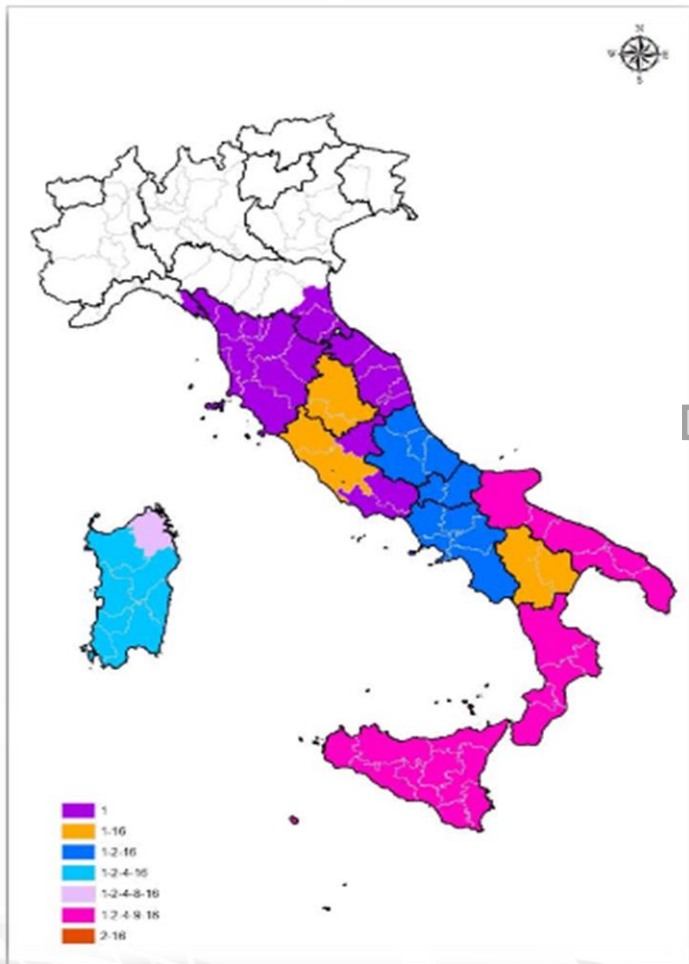
Bluetongue: the Italian restricted zones

BTV16

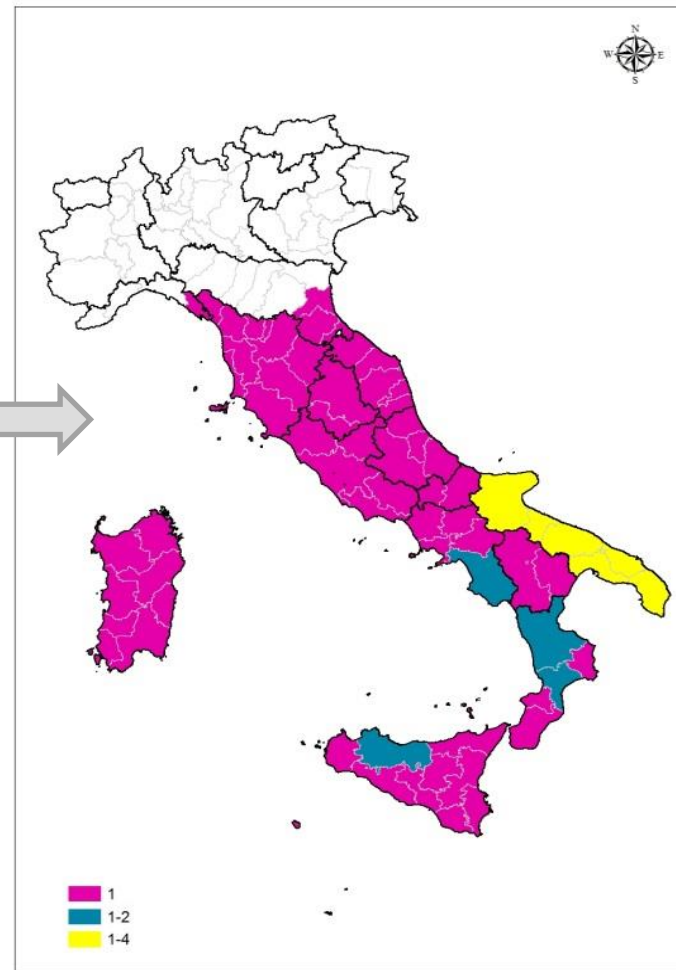
- Different strains isolated from 2004 to 2007 have been sequenced for the whole genome by next generation sequencing
 - strain isolated from BT symptomatic sheep after vaccination with BTV-16 MLV in Sardinia in 2004
 - strain isolated from viraemic animals with no story of previous vaccination in 2006 and 2007
- All Italian BTV-16 strains were nearly identical, showing nucleotide identity 99-100%
- All gene segments of the Italian BTV-16 strains from 2004, 2006 and 2007 also showed >99% sequence identity to the reference BTV-16 MLV (RSAvvvv/16) strain




Current restricted zones



Updated restricted zones On the basis of data analysis



Conclusions



The Italian veterinary Authority **ASKS** the competent services of the European Commission:

- to **reconsider the current Italian zones under restriction for BTV-16**, similarly to what applied for the Netherlands and Belgium in the cases of BTV-6 and BTV-11, taking into account the vaccine origin of the BTV-16 strain.

