

Ourbreak of *B. melitensis biovar 1* in the province of Teruel (Autonomous Community of Aragón) in 2021





SPAIN: STRATEGY OF FIGHTING AGAINST BOC (PHASES)

1976

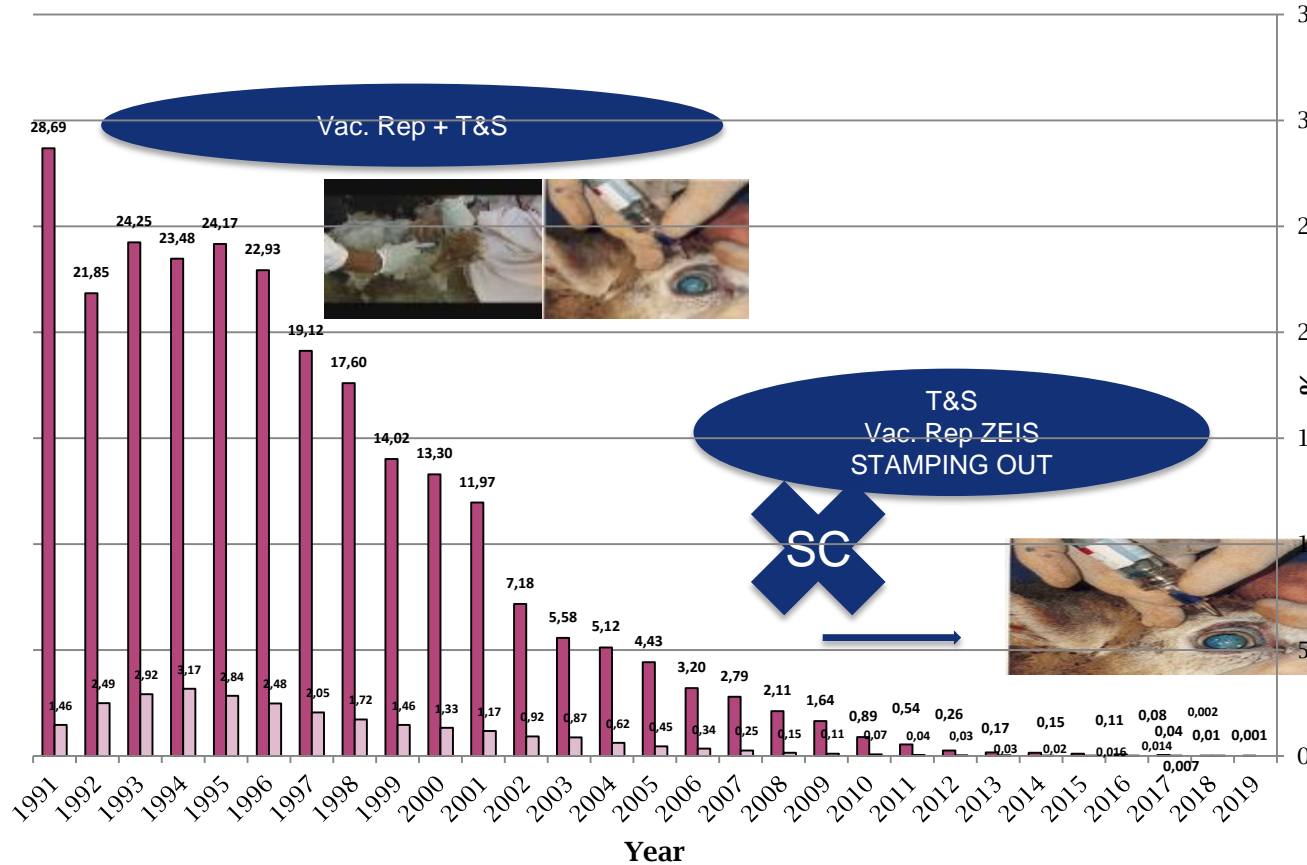
Rev 1 rep?

80s

Rev1 mas/D R

1990-91

Serology surveys



2012

REG OBmF (8)

2015

12 REG P=0

2017

P<0.1%

2021

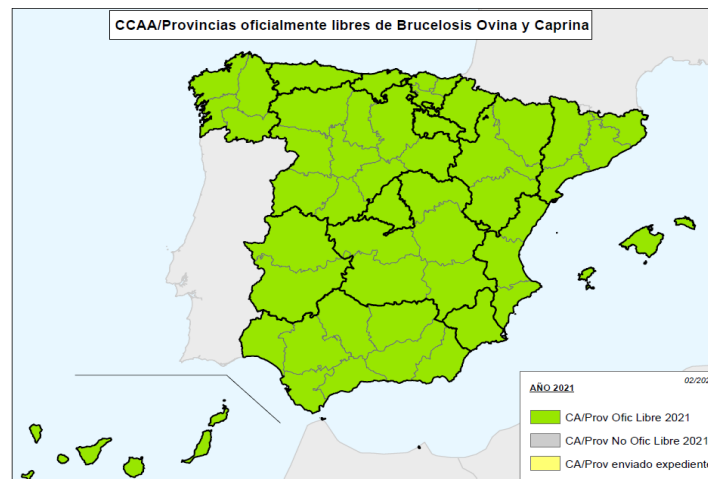
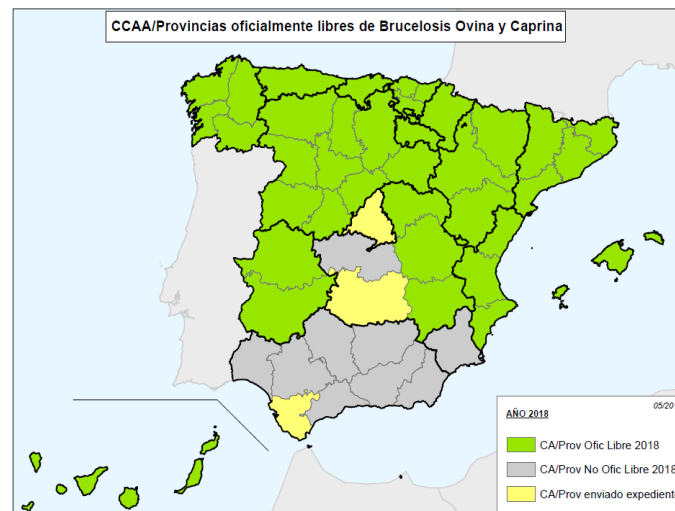
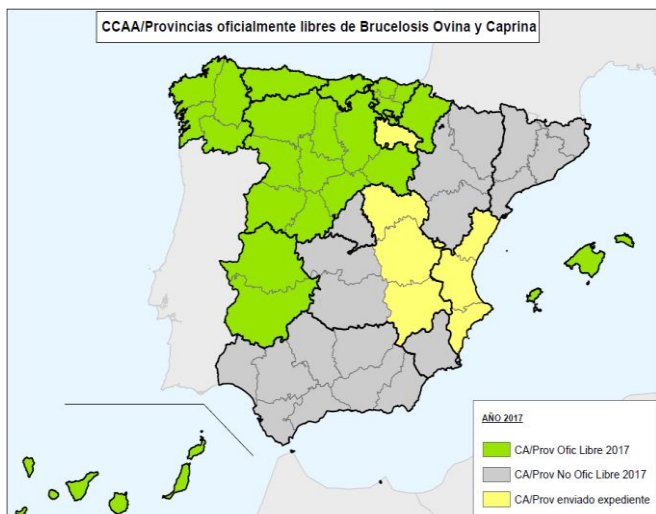
SPAIN OBmF

COMMISSION IMPLEMENTING REGULATION (EU) 2021/620

of 15 April 2021

laying down rules for the application of Regulation (EU) 2016/429 of the European Parliament and of the Council as regards the approval of the disease free and non vaccination status of certain Member States or zones or compartments thereof as regards certain listed diseases and the approval of eradication programmes for those listed diseases

(Text with EEA relevance)



Autonomous Community of Aragón:

3 provinces: Zaragoza, Huesca and Teruel.

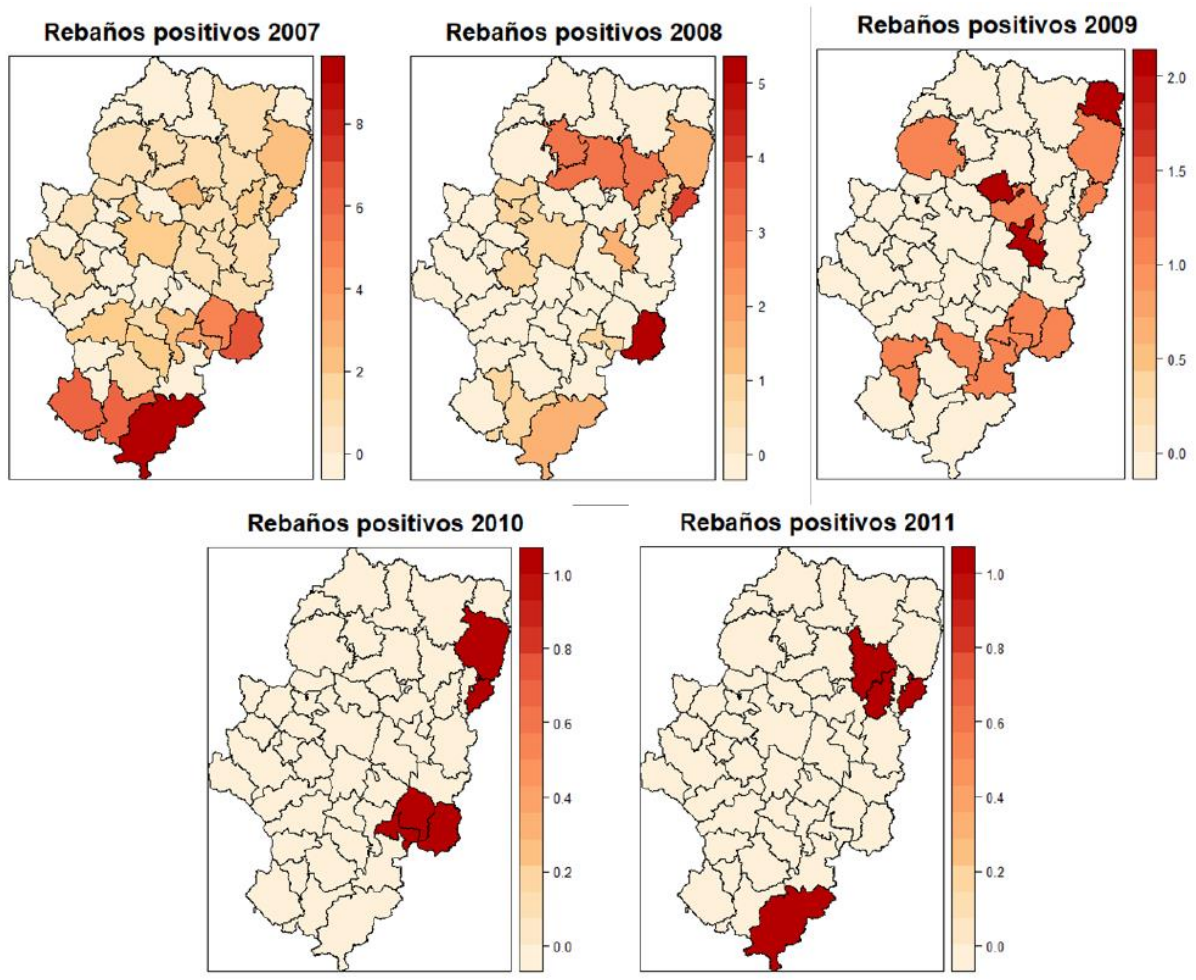
Officially Free since 2018.

Last cases in 2011 (biotype 1), in the municipalities of Monzón (province of Huesca) and Puebla de Valverde, LVU of Mora de Rubielos (province of Teruel).

Last vaccination January 2011



Last cases in Aragón 2007-2011



Monitoring 2011-2020

PNEBOC 2011-2028

OBmF

Province	Loyal Veterinary Unit	Number of holdings programme (average)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
			% tested	% tested	% tested	% tested	% tested	% tested	% tested	% tested	% tested	% tested
TERUEL	ALBARRACÍN	149	100%	100%	100%	100%	100%	100%	29%	41%	27%	33%
TERUEL	ALCAÑIZ	79	100%	100%	100%	100%	100%	100%	56%	28%	28%	31%
TERUEL	ALCORISA	119	100%	100%	100%	100%	100%	100%	39%	65%	24%	25%
TERUEL	ALFAMBRA	163	100%	100%	100%	100%	100%	100%	44%	19%	13%	20%
TERUEL	ANDORRA	54	100%	100%	100%	100%	100%	100%	33%	38%	35%	28%
TERUEL	CALAMOCHA	110	100%	100%	100%	100%	100%	100%	30%	21%	24%	23%
TERUEL	CANTAVIEJA	97	100%	100%	100%	100%	100%	100%	34%	21%	19%	20%
TERUEL	CELLA	64	100%	100%	100%	100%	100%	100%	34%	19%	27%	29%
TERUEL	HÍJAR	50	100%	100%	100%	100%	100%	100%	42%	22%	16%	13%
TERUEL	MONREAL DEL CAMPO	108	100%	100%	100%	100%	100%	100%	100%	32%	20%	27%
TERUEL	MONTALBÁN	81	100%	100%	100%	100%	100%	100%	26%	21%	20%	26%
TERUEL	MORA DE RUBIELOS	226	100%	100%	100%	100%	100%	100%	30%	18%	17%	17%
TERUEL	MUNIESA	31	100%	100%	100%	100%	100%	100%	23%	32%	21%	38%
TERUEL	TERUEL	111	100%	100%	100%	100%	100%	100%	41%	21%	26%	25%
TERUEL	VALDEROBRES	85	100%	100%	100%	100%	100%	100%	50%	16%	15%	22%

Surveillance Programme 2021

March 2021: 55 positives CFT in a herd of 1400 breeding animals (La Puebla de Valverde)

April 2021: animals slaughtered, samples and isolation of *Brucella spp.* in regional lab

May 2021: confirmed in NRL *B. melitensis biovar 1*

M3 2011

M4 2013

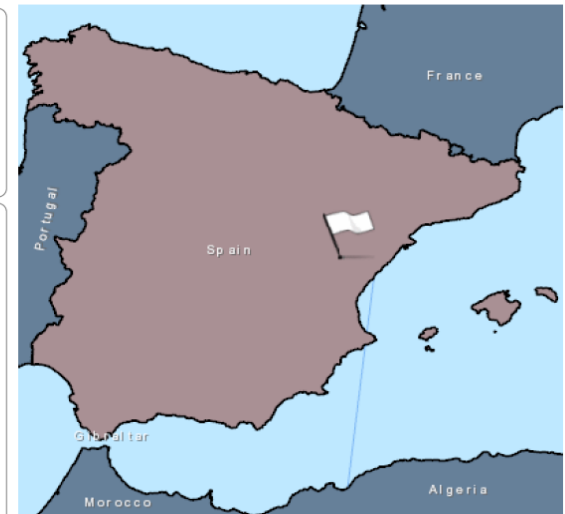


IMSOC - ADIS

Outbreak ES-B.MELIT-2021-00001

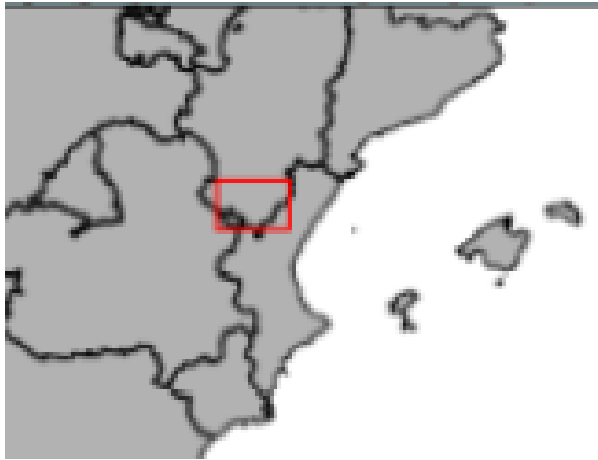
Country:	España (ES)
Disease name:	Brucella melitensis (Inf. por)
Type:	Primary
National reference:	2021/1
Related outbreak:	—
Local authority unit:	Teruel (ES01502) España (ES)

	Location
Latitude:	40.221194
Longitude:	-0.866053
Administrative division:	n.a. (251) (Level 3)



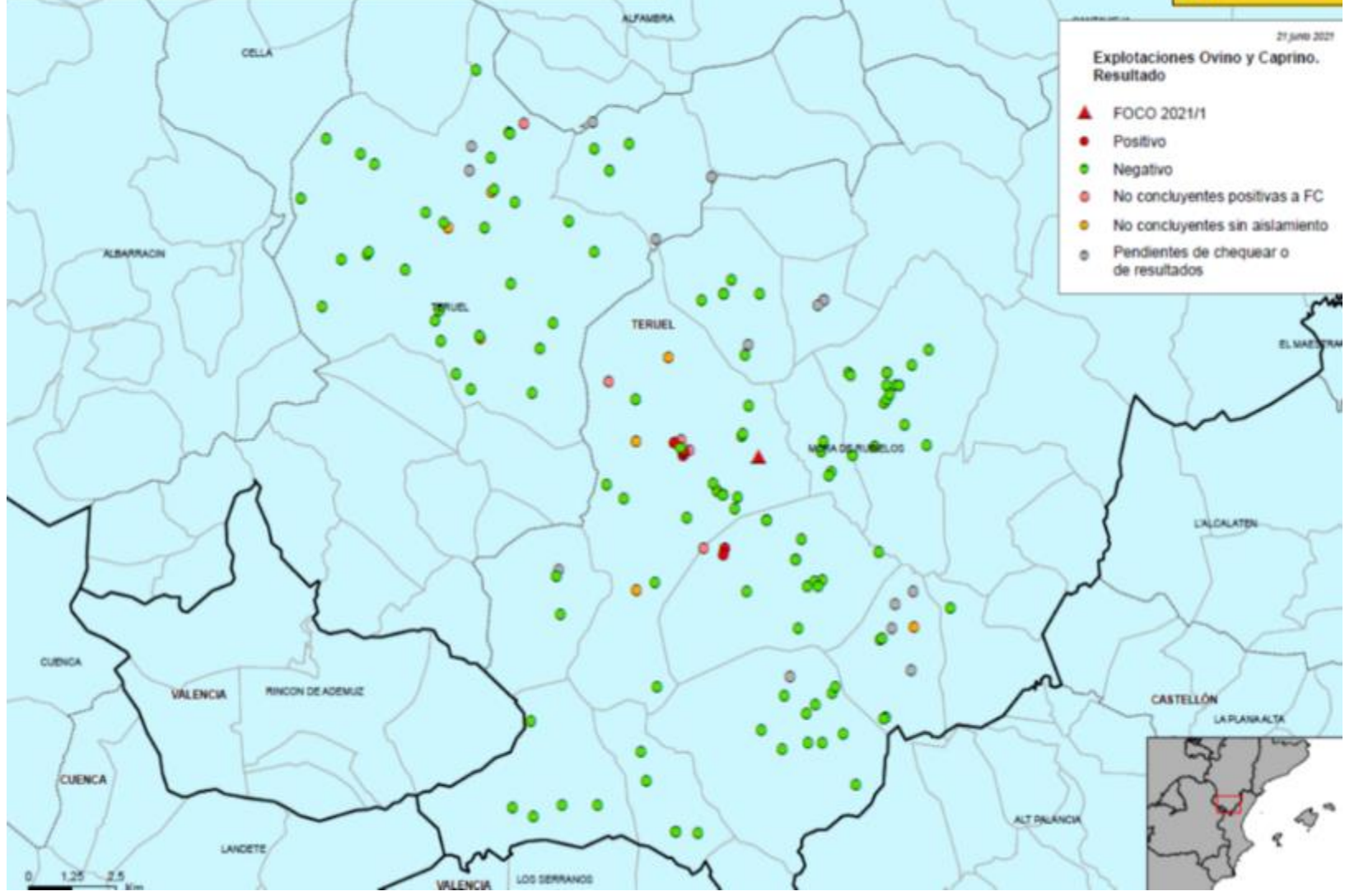
- Movements: only to fattening units of the province of Teruel and Castellón and to slaughterhouse
- Own replacement animals
- Contacts with other herds of the municipality and neighboring municipalities at pastures and crop stubble of wheat/barley (accidental mixing of animals, water points, common paths...).
- Area almost only with local seasonal movements ("trasterminancia") to use natural resources

Rasa Aragonesa (autoctonomous breed)



- Testing of all herds in the neighboring municipalities of La Puebla and Sarrión (some farms are up to 37 km away), as well as all farms within a 15 km radius, which included farms in municipalities that were not adjacent.
- 158 sheep and goat herds tested (46.000 animals)
- 6 confirmed as infected (secondary cases) in La Puebla de Valverde and Sarrión
- Primary and secondary cases depopulated (3.518 animals > 6 months) in June, C&D on-going
- 12 herds with 1-4 positive animals to CFT: all animals slaughtered, samples taken and no isolation of *B. melitensis*
- All of them (and in contact ones) retested: additional positive CFT (13 animals) in 6 herds
- 6 in-contact bovine herds tested: negative

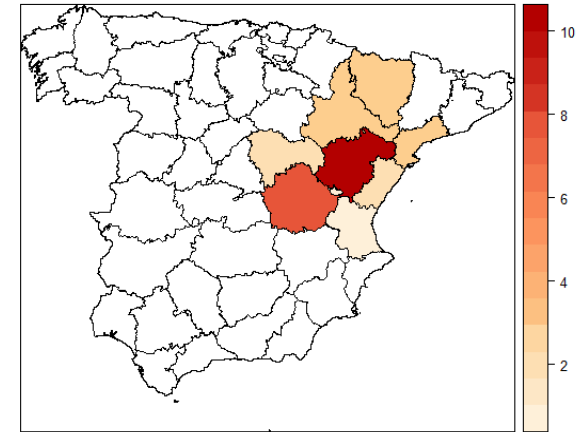
Explotaciones cercanas al foco 2021/1 de *Brucella melitensis*



Re-tested herds (35; 17.999 animals)

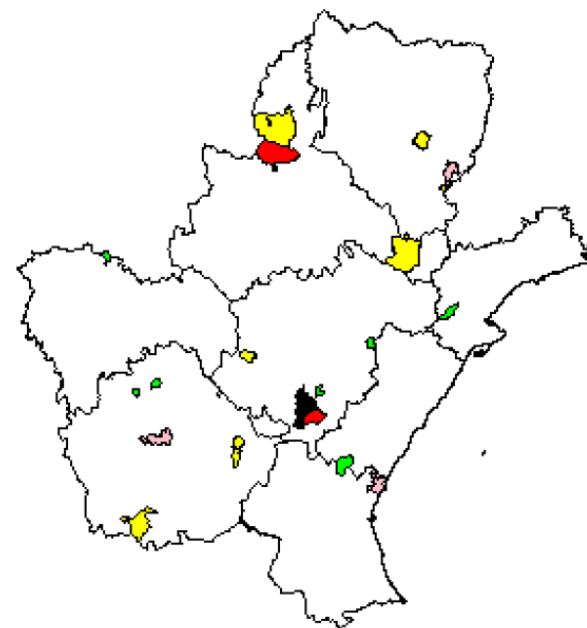
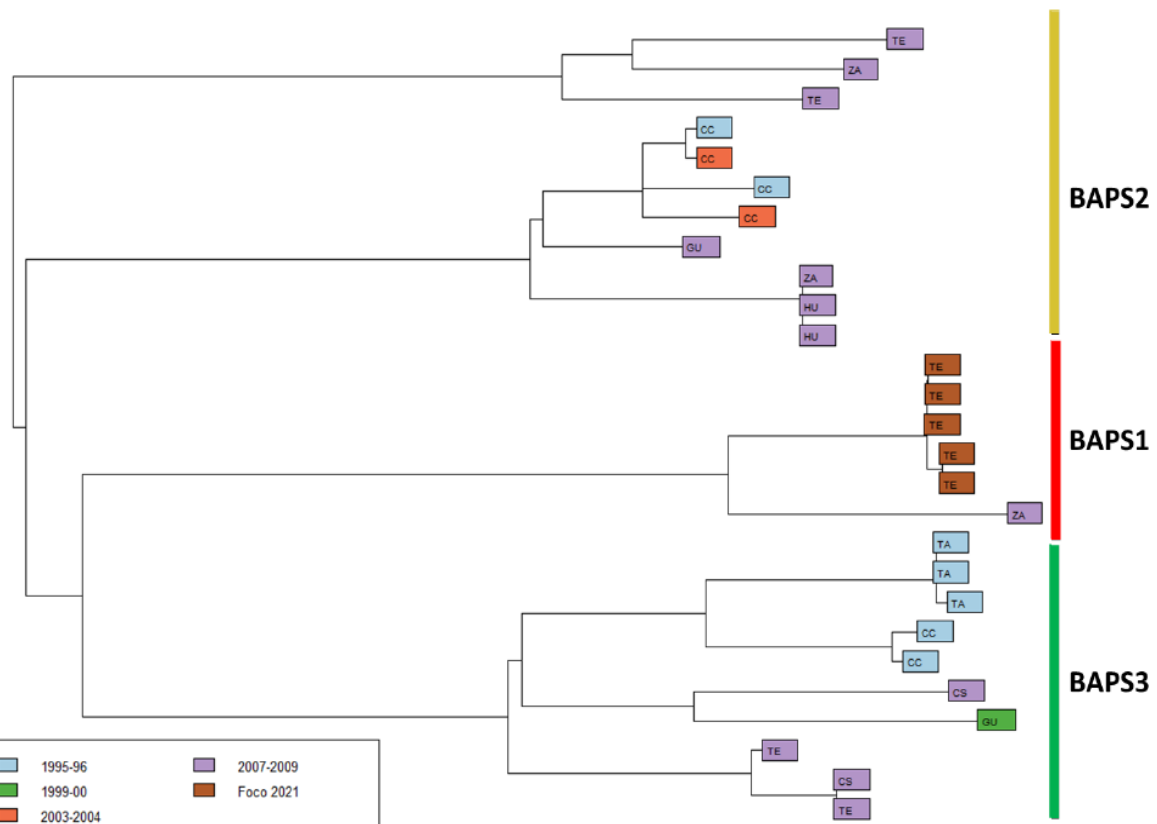
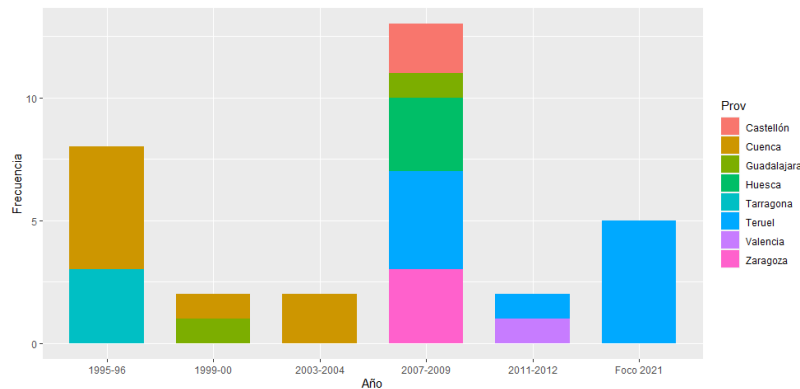
- One (3 animals + CFT) confirmed by culture : 3.988 sheep and goats + lambs (La Puebla de Valverde)
- One (4 animals + CFT) considered confirmed: high titres (La Puebla de Valverde)
- Both will be depopulated (secondary cases)
- Two (3 animals + CFT low titres) pending of culture results

Whole genome sequencing



Nº MUESTRA	TIPO DE MUESTRA	CCAA	Provincia	Municipio	Hospedador	Especie Brucella	Año aislamiento
M-1686	ADN	ARAGÓN	Huesca	Vencillón	Ovino	B. melitensis 1	2007
M-1688	ADN	ARAGÓN	Zaragoza	Caspe	Ovino	B. melitensis 1	2007
M-1689	ADN	ARAGÓN	Huesca	Barbastro	Ovino	B. melitensis 1	2007
M-1721	ADN	ARAGÓN	Teruel	Pozondón	Ovino	B. melitensis 1	2007
M-1820	ADN	ARAGÓN	Teruel	La Puebla de Valverde	Ovino	B. melitensis 1	2007
M-1824	ADN	ARAGÓN	Zaragoza	Tauste	Ovino	B. melitensis 1	2007
M-1837	ADN	ARAGÓN	Teruel	Cabra de Mora	Ovino	B. melitensis 1	2007
M-1879	ADN	ARAGÓN	Huesca	Tamarite de Litera	Ovino	B. melitensis 1	2008
M-1891	ADN	ARAGÓN	Teruel	Alba del Campo	Ovino	B. melitensis 1	2008
M-1989	ADN	ARAGÓN	Zaragoza	Ejea de los Caballeros	Ovino	B. melitensis 1	2009
M-2266	ADN	ARAGÓN	Teruel	La Puebla de Valverde	Ovino	B. melitensis 1	2011
134	ADN	C-LA MANCHA	CUENCA	San Clemente	Ovino	B. melitensis 1	1995
692	ADN	C-LA MANCHA	CUENCA	Olmeda de la Cuesta	Ovino	B. melitensis 1	1995
4	ADN	CATALUÑA	TARRAGONA	No consta	Ovino	B. melitensis 1	1995
4	ADN	CATALUÑA	TARRAGONA	No consta	Ovino	B. melitensis 1	1995
4555	ADN	C-LA MANCHA	CUENCA	Albalate	Ovino	B. melitensis 1	1995
3	ADN	CATALUÑA	TARRAGONA	No consta	Ovino	B. melitensis 1	1996
1	ADN	C-LA MANCHA	CUENCA	San Martín de Boniches	Ovino	B. melitensis 1	1996
1	ADN	C-LA MANCHA	CUENCA	Vega del Codorno	Ovino	B. melitensis 1	1996
1	ADN	C-LA MANCHA	GUADALAJARA	Paredes de Sigüenza	Ovino	B. melitensis 1	1999
1	ADN	C-LA MANCHA	CUENCA	Villar de Olalla	Ovino	B. melitensis 1	2000
1	ADN	C-LA MANCHA	CUENCA	Colliguilla	Ovino	B. melitensis 1	2003
1	ADN	C-LA MANCHA	CUENCA	Campillos-Paravientos	Ovino	B. melitensis 1	2004
1	ADN	C. VALENCIANA	CASTELLÓ	Olocau del Rey	Ovino	B. melitensis 1	2007
10	ADN	C-LA MANCHA	GUADALAJARA	Renales	Ovino	B. melitensis 1	2007
29	ADN	C. VALENCIANA	CASTELLÓ	Altura	Ovino	B. melitensis 1	2008
2	ADN	C. VALENCIANA	VALENCIA	Sagunto	Ovino	B. melitensis 1	2012
5	ADN	ARAGÓN	Teruel	La Puebla de Valverde	Ovino	B. melitensis 1	2021
1	ADN	ARAGÓN	Teruel	La Puebla de Valverde	Ovino	B. melitensis 1	2021
3	ADN	ARAGÓN	Teruel	La Puebla de Valverde	Ovino	B. melitensis 1	2021
5	ADN	ARAGÓN	Teruel	Sarrión	Ovino	B. melitensis 1	2021
7	ADN	ARAGÓN	Teruel	Sarrión	Ovino	B. melitensis 1	2021

Periodo de aislamiento



Report WGS

- The results obtained confirm the close epidemiological relationship between the strains isolated in 2021 given the high degree of similarity between their sequences.
- The distance of >30 SNPs in the existing core genome with the closest strain (isolated in 2007) is above the values described for isolates forming part of the same outbreak, suggesting that if the outbreak originated from the reactivation of the infection in some latently infected animal during the period prior to 2011, when the disease was apparently eliminated from the small ruminant population of Aragon, the parental strain was not included in the sequenced strains (no routine culture before 2007, not isolates of all positive herds available).
- According to the culture results obtained, although strains of biotype 3 were present in the region, most of the farms with confirmed cultures had strains of biotype 1, reinforcing the idea of a complex epidemiological situation with a simultaneous circulation of several lineages of *B. melitensis*, so the hypothesis of a reactivation of an infection originating from that period (whose parental strain was not included in the panel) cannot be ruled out.

ID	HOLDIND		SPECIE	SEX	DATE OF BIRTH
724020000298543	PRIMARY CASE		Ovino	Hembra	01/05/08
724020000298601	PRIMARY CASE	P	Ovino	Hembra	01/05/08
724020000298690	PRIMARY CASE		Ovino	Hembra	01/05/08
724020000298733	PRIMARY CASE		Ovino	Hembra	01/05/08
724020000298733	PRIMARY CASE	P	Ovino	Hembra	01/05/08
724020001441400	PRIMARY CASE		Ovino	Hembra	01/07/08
724020001502409	PRIMARY CASE		Caprino	Hembra	01/07/08
724020000295528	SECONDARY CASE		Ovino	Hembra	01/12/09
724020000295552	SECONDARY CASE		Ovino	Hembra	01/12/09
724020000296618	SECONDARY CASE		Ovino	Hembra	01/12/09
724020001442820	PRIMARY CASE	P	Ovino	Hembra	01/01/10
724020001442841	PRIMARY CASE	P	Ovino	Hembra	01/01/10
724020001442844	PRIMARY CASE		Ovino	Hembra	01/01/10
724020001442851	PRIMARY CASE	P	Ovino	Hembra	01/01/10
724020001442886	PRIMARY CASE	P	Ovino	Hembra	01/01/10
724020001442900	PRIMARY CASE		Ovino	Hembra	01/01/10
724020001442919	PRIMARY CASE		Ovino	Hembra	01/01/10
724020001443202	PRIMARY CASE		Ovino	Hembra	01/01/10
724020001443220	PRIMARY CASE	P	Ovino	Hembra	01/01/10
724020001443283	PRIMARY CASE	P	Ovino	Hembra	01/01/10
724020001443327	PRIMARY CASE		Ovino	Hembra	01/01/10
724020001443327	PRIMARY CASE	P	Ovino	Hembra	01/01/10
724020001486917	SECONDARY CASE		Ovino	Hembra	01/01/10
724020001486929	SECONDARY CASE	P	Ovino	Hembra	01/01/10
724020000297514	SECONDARY CASE	P	Ovino	Hembra	01/01/10
724020000297517	SECONDARY CASE		Ovino	Hembra	01/01/10
724020001466249	SECONDARY CASE	P	Ovino	Hembra	01/01/10
724020001466267	SECONDARY CASE	P	Ovino	Hembra	01/01/10
724020001466286	SECONDARY CASE	P	Ovino	Hembra	01/01/10
724020001466194	SECONDARY CASE	P	Ovino	Hembra	01/01/10

CONCLUSIONS/NEXT STEPS

- OUTBREAK DETECTED BY ACTIVE SURVEILLANCE (NO NOTIFICATION OF ABORTIONS)
- MOST PROBABLY CAUSE: REACTIVATION OF A LATENT ANIMAL
- PRIMARY AND SECONDARY CASES DEPOPULATED
- ADAPTED SURVEILLANCE (15 km RADIUS): LIMITED NUMBER OF INFECTED HERDS, LOCALIZED AND EPIDEMIOLOGICALLY LINKED WITH PRIMARY CASE
- CLOSE MONITORING OF HERDS WITH POSITIVE SEROLOGICAL RESULTS/CULTURE -
- RE- TEST OF ALL HERDS AGAIN IN THE SECOND HALF 2021. CLOSE MONITORING BY OVS OF LAMB SALES TO DETECT REPRODUCTIVE PROBLEMS
- MEETINGS AND AWARENESS FOR FARMERS AND PRIVATE VETS TO NOTIFY ANY ABORTION IN THE ZONE TO COMPLEMENT ACTIVE SURVEILLANCE

Thank you

