

# Re-emergence of *Brucella ovis* infection in Aragón (Spain) after the ban of Rev 1 vaccination

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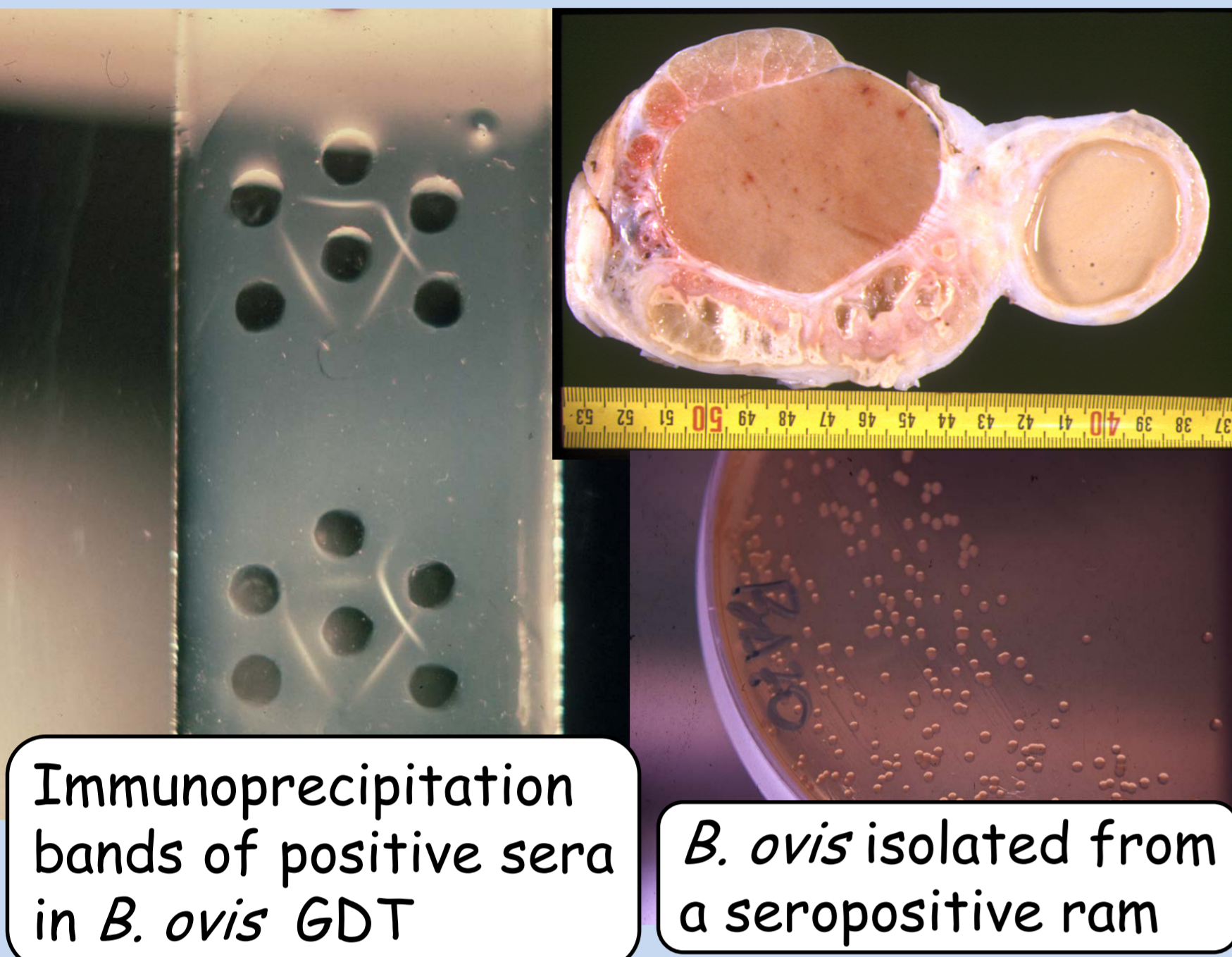
*B. ovis* infection is one of the most widespread causes of reproductive failure in sheep. No specific *B. ovis* vaccines are available, but the live attenuated Rev1 vaccine, used for the prophylaxis of *B. melitensis* infection in sheep and goats, cross-protects<sup>(1)</sup> against *B. ovis*. Rev1 vaccination of small ruminants (both males and females) was compulsory in Aragón as a key tool of the *B. melitensis* official eradication program applied. Once the *B. melitensis* officially free status was reached (January 2011), Rev 1 vaccination was withdrawn.

## Objective:

To study the evolution of *B. ovis* infection in Aragón from 2011 to 2019 after the ban of Rev 1 vaccination

## Material and methods:

*B. ovis* surveillance (and voluntarily culling of rams) was conducted in Aragón from 2010 to 2019 using a gel immunodiffusion test (GDT) with a *B. ovis* hot saline extract<sup>(2)</sup> as antigen. We collected GDT data from rams tested in 2010 (last year of Rev 1 vaccination) and then yearly from 2015 to 2019. In 2010, 2015 and 2016, 100% of the rams of Aragón were tested but since 2017, the whole ram population from only one third of the flocks was tested each year. Both individual and flock *B. ovis* seroprevalence were estimated (Table 1). The bacteriological analyses<sup>(3)</sup> performed in many of these seropositive flocks confirmed the presence of *B. ovis*. The trends in the geographic distribution of infected flocks was analyzed with the SaTScan v9.6 software using latitude and longitude data for each farm tested<sup>(4)</sup>.

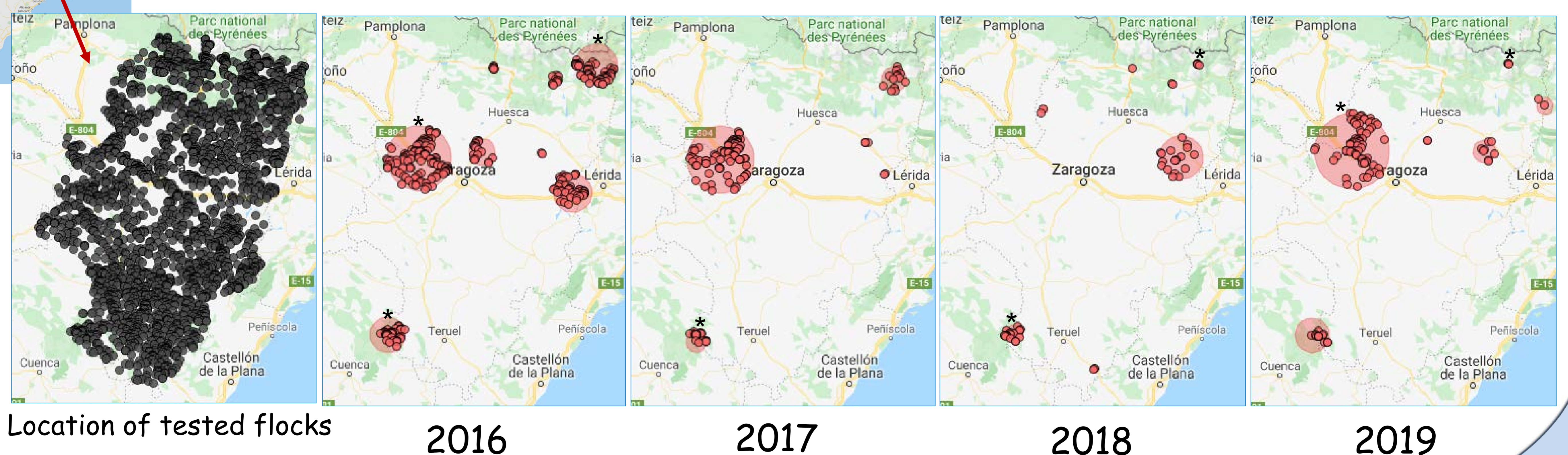


## Results:

Table 1. Evolution of individual and flock *B. ovis* seroprevalence in Aragón from 2010 to 2019

Year	N <sup>er</sup> of tested sera	N <sup>er</sup> of positive sera	% Positive sera	N <sup>er</sup> of tested flocks	% Tested flocks	N <sup>er</sup> of positive flocks	% Positive flocks
2010	29608	120	0,41	4062	100	90	2,22
2015	31890	384	1,20	2988	100	112	3,75
2016	32455	458	1,41	2915	100	137	4,70
2017	14426	238	1,65	1091	41,34	52	4,77
2018	10820	215	1,99	818	31,00	69	8,44
2019	9155	279	3,05	730	27,66	69	9,45

Figure 1. Geographic distribution of seropositive flocks in Aragón from 2016 to 2019 (\* Statistically significant disease clusters identified by SaTScan).



**CONCLUSION:** This work proves that once *B. melitensis* infection is eradicated and Rev 1 vaccination banned, a huge reemergence of *B. ovis* infection is produced in sheep. This serious problem has been also reported in other EU countries with similar conditions such France. Accordingly, in *B. ovis* endemic areas in which Rev 1 vaccination is withdrawn, it is advisable to implement specific control programs against this important infection that affects both rams and ewes

## References:

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