

# Prevalence and distribution of exposure to Schmallenberg virus (SBV) in Irish cattle from Nov 2012 to Nov 2013

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## Introduction

Schmallenberg virus (SBV) was first identified in November 2011 and infection can result in congenital malformation of the musculoskeletal and central nervous systems of ruminants (1). There has been extensive spread of SBV throughout Western Europe, borne by *Culicoides* spp. (2). The first confirmed clinical case of SBV in Ireland was diagnosed in Oct 2012 (3). Extensive spread throughout Ireland was anticipated in 2013.

**The objectives of this study were to determine the seroprevalence and distribution of exposure to Schmallenberg virus in Irish cattle from November 2012 to November 2013.**

## Methods

Samples of brain were collected from malformed bovine and ovine foetuses submitted for post mortem examination. These samples were tested for SBV using RT-qPCR. Three serological surveys were carried out on bovine sera submitted for the national brucellosis eradication programme. A spatial analysis of both sets of data was carried out.

## Results

Between October 2012 and 10th May 2013, SBV was confirmed by RT-qPCR in brain tissues from malformed foetuses obtained from 49 cattle herds and 30 sheep flocks in Ireland.

Fig 1. Spatial distribution of samples collected through pathology based and serological based SBV surveillance in Ireland during 2012 and 2013

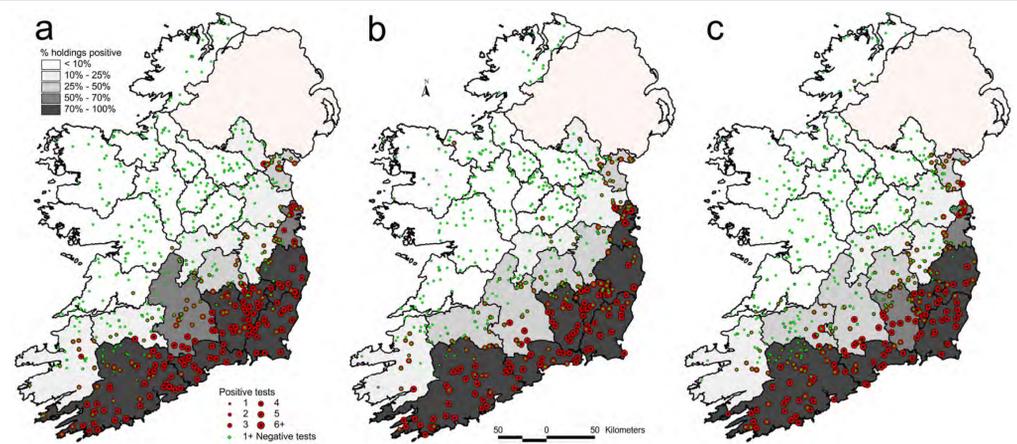
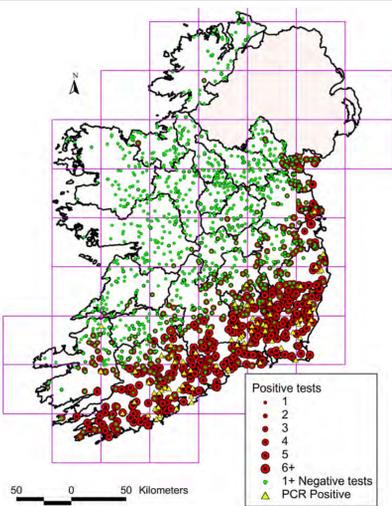


Fig 2. County-level herd SBV prevalence, and the spatial distribution of herds positive to SBV, based on serology

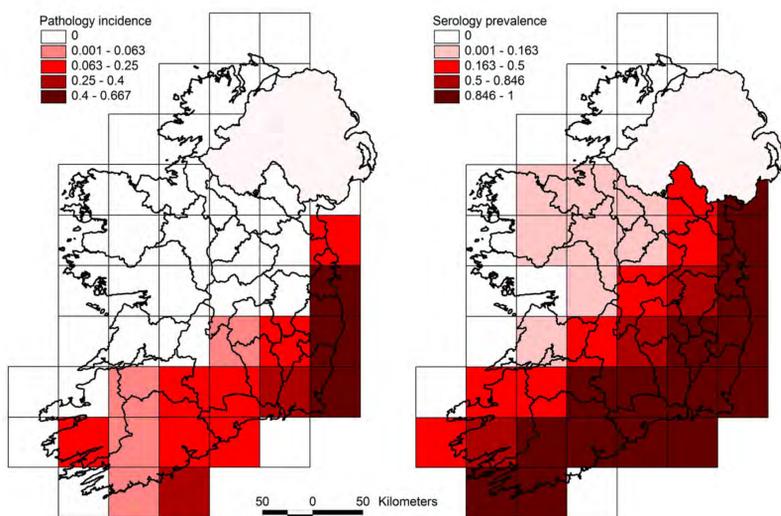


Fig 3. Pathological herd incidence and serological herd prevalence per 50 x 50 km square grid

Three National serosurveys were conducted between November 2012 and November 2013.

	November '12	August '13	November '13
Herd-level seroprevalence	53%	51%	53%
Animal-level SBV seroprevalences	36%	35%	33%

The herd level seroprevalence in counties ranged from 0 to 100%. Counties in the south and southeast having the highest seroprevalence (>50%), the midlands a moderate herd level seroprevalence (10–50%) while northern and north western counties had a low herd level seroprevalence (0–10%).

## Conclusions

1. The initial serological survey carried out at the end of 2012 showed widespread exposure to SBV in southern and south eastern Ireland.
2. Subsequent surveys in 2013 showed little or no evidence of any further outward spread.
3. Unlike, several other European countries there was no evidence of spread in the second vector season.
4. Given the lack of evidence for circulation since 2012, it is likely that younger age cohorts in herds previously exposed to SBV and animals of all ages in herds on the margins of affected areas are immunologically naive to SBV, and susceptible if the virus was to re-emerge.
5. The aim of pathological based surveillance is the ability to detect cases of SBV malformation. The aim of the serological surveillance is to quantify extent of SBV exposure to be extrapolated nationally. While the two strategies were complimentary, they were not directly comparable.

## References

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