

# Investigation of Subacute Edema disease in France. Sampling method and prevalence



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## Background and Objectives

Edema disease (ED) is caused by Shigatoxin Stx2e, produced by STEC (Shiga Toxin producing Escherichia coli). It is described mainly as an acute pathology and a vaccine (Ecoporc SHIGA®) is available since 2013 in France. The mortality due to ED is controlled by this vaccine, but it seems that other performance parameters may improve as well. These observations raised the question of a subacute form of ED. A study was conducted in order to define the prevalence of STEC in farms without clinical ED.

## Material and Methods

Forty-one farrow to finish farms, with no clinical ED and not using anti-ED specific vaccine were selected.

In each farm two batches with at least 30 piglets in post-weaning were sampled, allowing the detection of a minimum of 10 % prevalence. Two sampling methods were compared in the same pen: a pool of five rectal swabs (from one light, one heavy and three medium weight pigs, respectively) versus boot swabs. A qPCR for the detection of Stx2 was directly applied on the native samples.

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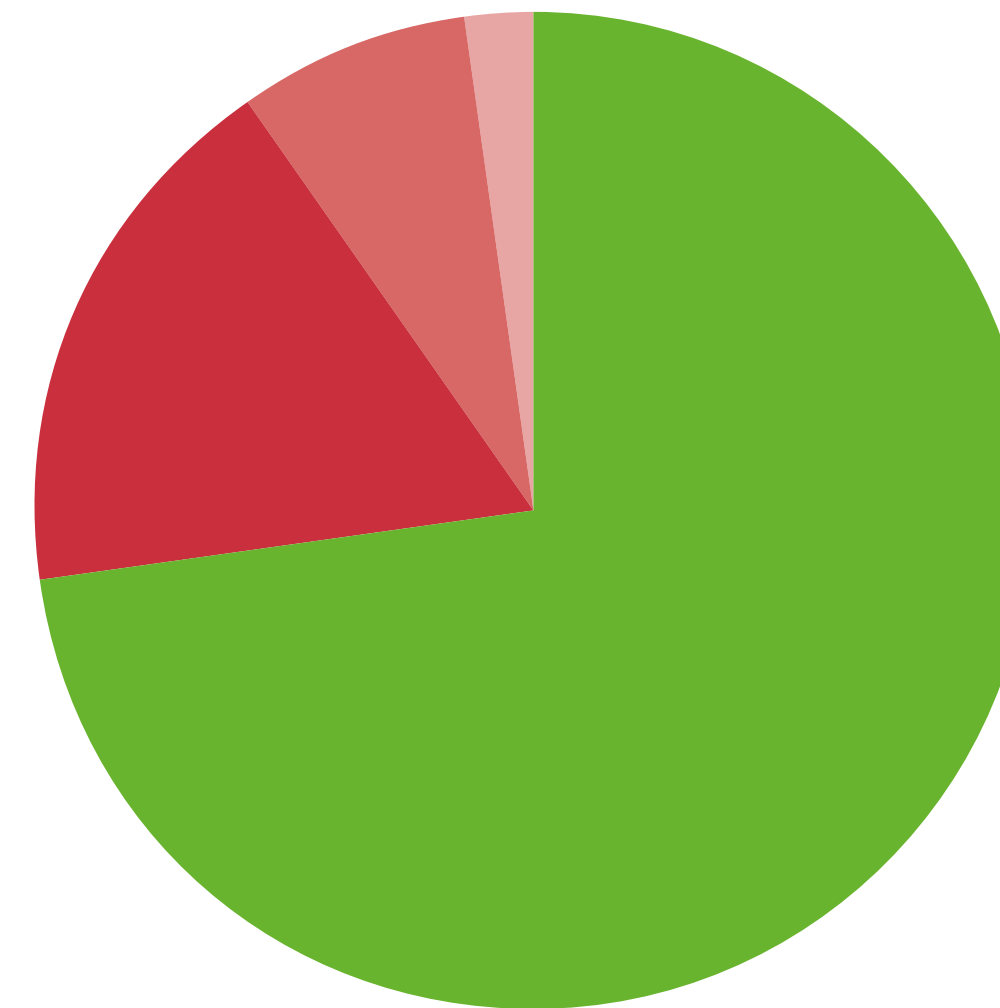
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## Global results 480 pens with Boots Swabs and pools of 5 rectal Swabs

		Boots Swabs	
		NEG	POS
Pool of Rectal Swabs	NEG	73 %	7.5 %
	POS	2 %	17.5 %



Boots Swabs Neg – Pool Rectal Swabs Neg

Boots Swabs Pos – Pool Rectal Swabs Neg

Boots Swabs Neg – Pool Rectal Swabs Pos

Boots Swabs Pos – Pool Rectal Swabs Pos

**Boots swabs vs Rectal Swabs  
90 % of agreement**

**27 % of positive pens**

**29 % more positive pens  
with Boots Swabs**

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## Farm's Status Quo

Status	B1 – B2 Négatives	B1 Pos B2 Neg	B1 Neg B2 Pos	B1- B2 Positive
Number of Farms	22	3	3	13

- Boots Swabs Farm's prevalence =  $19/41 = 46.4\%$
- 31.6 % of Positive farms positive on only 1 batch
- ↪ Interest of sampling 2 batches

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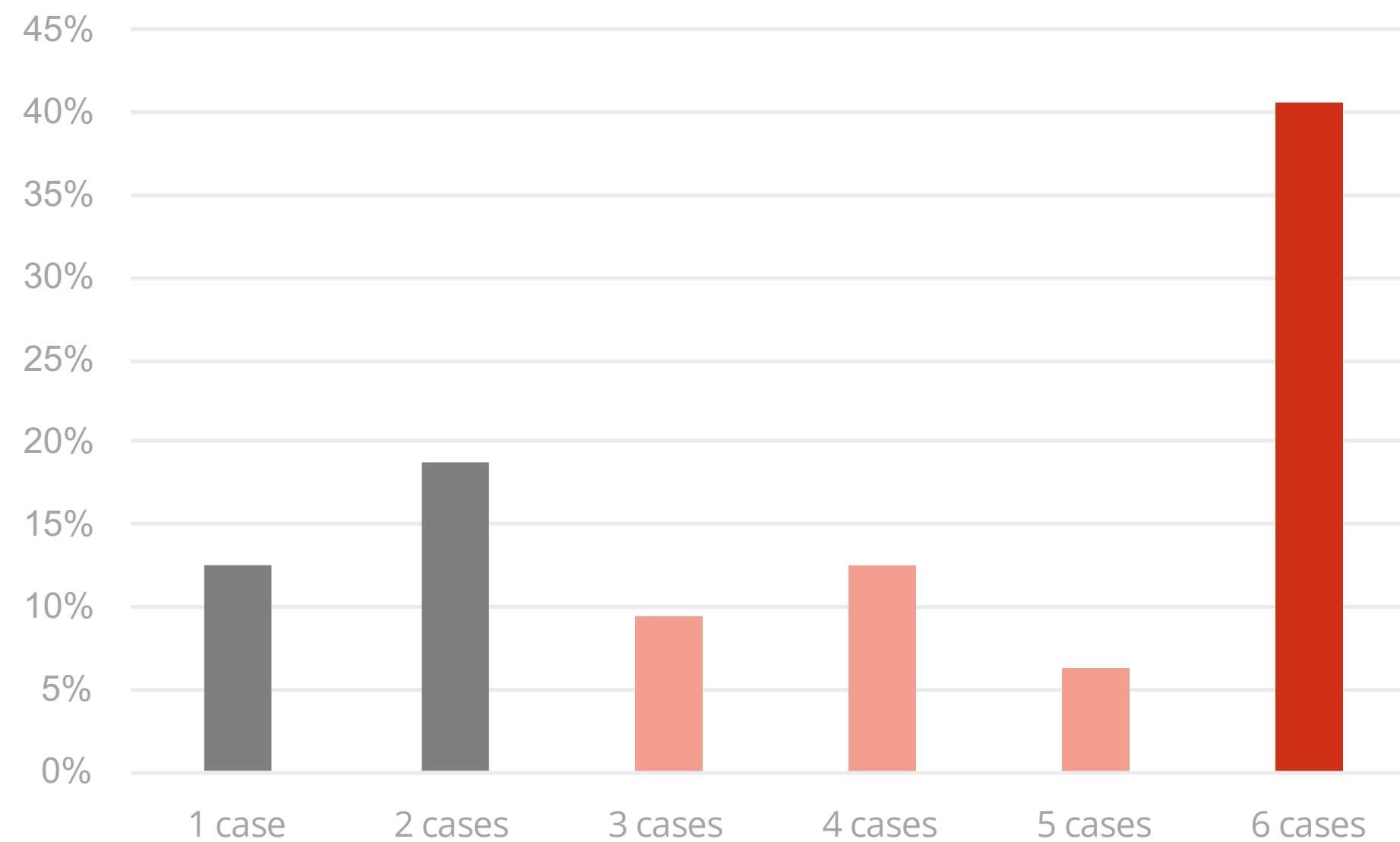
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## Batch Status Quo

**39 % of batches positive**

*59 % of positive batches with at least 4 pens out 6 positive*



Quite large diffusion of STEC in positive batches

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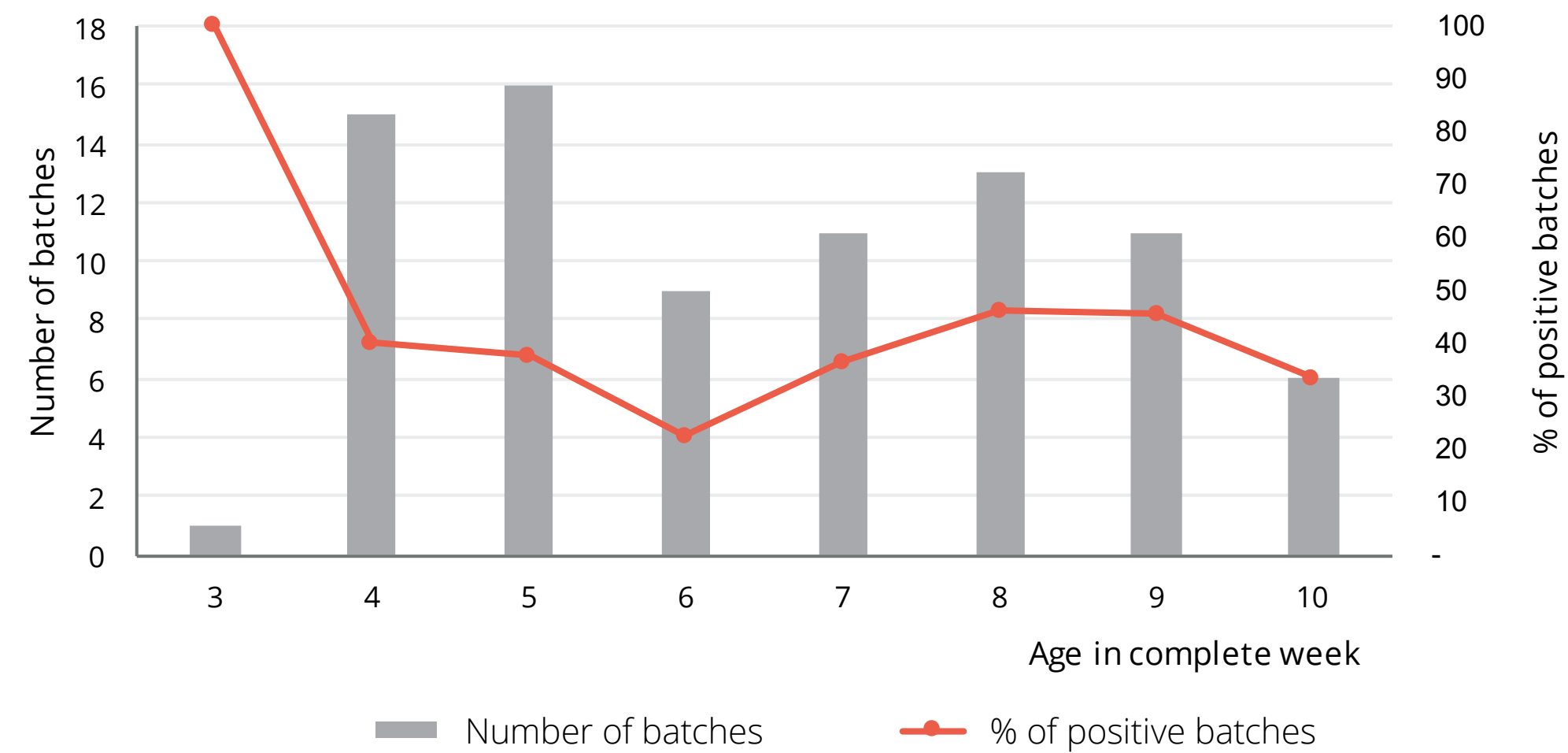
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Prevalence depending of age



→ No Age effect

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## Results

qPCR results at pen level are as follows: 17.5 % positive for both sampling methods; 7.5 % positive for boot swabs only, 2.5 % positive for rectal swabs only. More positive pens were detected by boot swabs (24.7 % vs 19.2 %) with in average four positive pens (out of six) per positive batch. There is no age effect regarding STEC prevalence. At farm level, 19 out of 41 are positive with boot swabs (46.4 %). In the positive farms, both batches tended to be positive.

## Discussion & Conclusion

This study demonstrates a high prevalence of STEC in farms without clinical signs of ED. This supports the hypothesis of a subacute ED form in pig farms.