Subacute edema disease : positive effect of the vaccination against Shigatoxin Stx2e on performances

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Background and objectives

Edema disease (ED), one of the major diseases in pigs during nursery, is caused by Shigatoxin- Stx2e, produced by STEC (Shiga Toxin producing *Escherichia coli*). Mainly described as an acute pathology, STEC colonization might be linked with negative effect on zootechnical performance. The objective of this study was to evaluate the evolution of zootechnical performance on farms affected by a subacute form and having implemented vaccination.

Material and methods

- 4 farms confirmed as being positive for presence of Stx2e STEC (by cultivation, typisation and qPCR)
- Ecoporc Shiga® vaccination was implemented and piglets were vaccinated between 4 and 7 days of life
- Performance parameters (ADG – average daily gain as well % of mortality) in periods before and after (minimum 4 batches – min 300 piglets per batch) implementation of vaccination was compared.

Table 1 – *Description of the selected farms (7 batches management – weaning at 28 day of age (doa)).*

Farm	Issues related on the farm	Diagnostic (qPCR Stx2e)
A (230 sows - ATB free from 28 doa)	Lack of growth in post-weaning (PW)	3/3 : + at 6 woa 0/3 : + at 9 woad
B (250 sows - ATB free from birth)	Mortality rate over the objectives (3% in PW) - Lack of growth.	Necropsies in favor + O141K85 revealed (F18 + Stx2e positive)
C (220 sows - Label Production)	Lack of growth in PW + mortality rate in fattening over the objectives	3/3 : + at 8 woa 1/3 : + at 9 woa
D (190 sows - ATB free from 28 doa)	Lack of growth in PW	1/3 : + at 5 woa 2/3 : + at 8 woa

Results

- In farms A,B,D growth performances between weaning and slaughtering improved (ADG increased respectively by 3g, 39g ($p<0.05$) and 13g). In farm C, the ADG in post-weaning significantly increased by 51 grams.
- In farms A,B the implementation of the vaccine resulted into a significant decrease of mortality in post-weaning period (respectively of 2 and 2.4 points) raising less than 1% ; in farms C,D, it remains stable.

Table 2 – *Evolution of performances on selected farms.*

	Farm A	Farm B	Farm C	Farm D*
N batches (before/after)	5/5	5/5	7/9	4/4
% mortality in PW before	2.7	3	2.9	1.3
% mortality in PW after	0.7	0.6	2.8	1.6
DIFFERENCE	-2 points	-2.4 points	-0.1 point	+0.3 point
ADG (mean before) (g)	700	711	423 (PW)	761
ADG (mean after) (g)	703	750	474 (PW)	774
DIFFERENCE	+3 g	+39 g	+51 g	+13 g
Evolution of weight at slaughterhouse	+0.4 kg	+4.0 kg	/	+0.2 kg
Length weaning-slaughterhouse	Stable 159 days	2 days less (160 à 158)	/	2 days less (149 à 147)

*Farm D is distinctive because mortality rate increased (but on ¾ on batches vaccinated, a stop of vaccination against Lawsonia intracellularis was carried out by the breeder, which may explain these results)

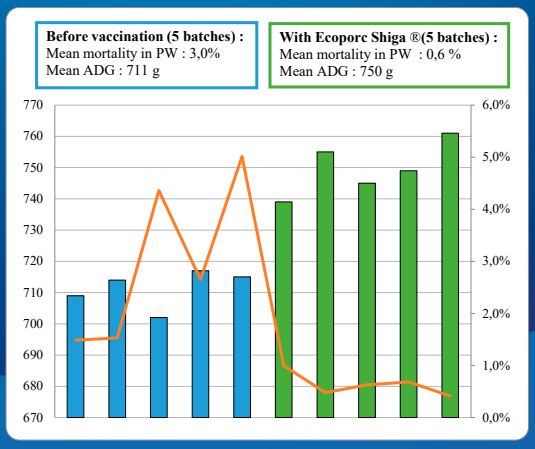

Figure 1 – *Graph showing the evolution of performances after implementation of vaccination on farm B*

Discussion and Conclusion

Results of this study confirmed outcomes of previous works (Autret *et al.* 2017. et Leneveu *et al.*, 2019) and offering interesting prospects in improving the performance of farms implementing Ecoporc Shiga® vaccination where subacute edema disease is suspected (frequency estimated at nearly 70% - Brilland *et al.* 2021). Further studies are needed in order to confirm the positive effect of vaccination in STEC positive farms.

References

1. Autret et *al.* 2017. Vaccination Ecoporc Shiga® et améliorations des performances. Congrès annuel de l'AFMVP, 235-236.
2. Leneveu *et al.*, 2019. Investigation de la maladie d'oedème subaiguë du porc en France, étude dans 41 élevages - Analyse du statut "Shigatoxine" en lien avec les performances et les caractéristiques d'élevage.
3. Brilland *et al.*, 2021. Maladie de l'œdème subaiguë : analyse du statut «Shigatoxine» dans les élevages français suspects. Congrès annuel de l'AFMVP