

# Edema Disease vaccination in weaners improves feed conversion rate

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## Introduction

Edema Disease (ED) is caused by *E. coli* producing shiga toxin, affecting growing pigs characterized by oedema, neurological disorders, and sudden death. However, surviving pigs usually become unthrifty and show reduced Average daily gain (ADG) and feed conversion rate (FCR).

## Aim of the Study

To determine if vaccination at 4 days life with a genetically modified recombinant Stx2e antigen (Ecoporc Shiga, Chemifarma – IDT Biologika GmbH) could prevent both subclinical and clinical Edema Disease.

## Materials and Methods

490 piglets from a positive Stx2e farm with an history of recurring clinical ED outbreaks were randomly assigned into two groups: vaccinated (V; n=244) and non-vaccinated (NV; n = 246). In both groups the use of drugs against *E. Coli* was banned, unless the appearance of clinical signs. Pigs were weighed at weaning (28 days old) and 55 days after. Within each group, 40 piglets were also weighted individually. Moreover, clinical signs of Edema Disease, mortality, feed consumption and pharmacological treatments were recorded.

## Results and Discussion

Neither clinical signs were observed between groups, nor any statistical difference ( $P > 0.05$ ) in mortality (V=2.5 % vs. NV=4.9), weight at 55 days (V=26.9 vs. NV=26.4 kg), ADG (V=358 vs. NV=350 g) and percentage of treated animals/day (V=1.6 vs. NV=1.9). However, a greater percentage of NV pigs did not reach 20 kg at 55 days and were not selected for best quality commercial purposes (V=28.5 vs. NV=21.7 %). Moreover, the daily feed intake (V=760 vs. NV=897 g) and FCR (V=1.58 vs. NV=1.88) improved in vaccinated pigs. Based on SIP Consultors cost database 2015, the economic impact of mortality reduction was 0.9 Euro/piglet and the improvement of FCR was 2.2 Euro/piglet.

## Conclusion

This study shows that vaccination against Stx2e in positive farms can have a positive impact in mortality, but also in growth performance parameters, even in absence of clinical outbreaks.

	vaccination (n=244)	control (n=246)
Starting weight	7.02	7.07
Mortality, %	11.1	9.4
Remainders at 55 days, %	21.7	28.5
Average weight at 55 days, kg	27.9	27.9
Average weight remainders, kg	19.6	20.4
Average gain, kg	19.7	19.3
Average daily gain, kg	0.358	0.350
Daily feed consumption, kg	0.760	0.897
Feed conversion rate	1.58	1.88

### Take home messages

- The presence of *E. coli* producing shiga toxin might be sub-clinical without outbreaks, but interferes with feed conversion rate.
- Piglet management is fundamental for the management of Edema disease.
- Modern pig industry need the responsible use of antibiotics, and vaccination against *E. coli* might be a solution.

#### References

Fairbrother and Gyles. Colibacillosis. In Diseases of Swine, 2012, 10th edition, 723–749