

# Reducing Edema Disease Escherichia Coli (EDEC) Related Disease and Mortality in a Norwegian Commercial Pig Herd by Vaccination with ECOPORC SHIGA



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## Introduction

Edema disease (ED) is caused by certain strains of Escherichia coli (most often E. coli O139) which produce a shiga-like toxin named Stx2e (or VT2e). The toxin is absorbed

from the small intestine into circulation where it causes degenerative angiopathy in small arteries and arterioles, leading to the formation of edema in target organs.

## Objective

The objective of this trial was to investigate the preventive effectiveness of a commercially available inactivated Stx2e-toxoid vaccine (ECOPORC SHIGA, IDT Biologika

GmbH, Dessau-Rosslau Germany) in a herd with reoccurring increased post-weaning mortality caused by EDEC.

## Material and methods

The herd was a 150 sow commercial farrow-to-feed herd, with post-weaning mortality of 5–10% caused mainly by ED. The herd had 5.5-week batch production, and all-in all-out management of combined farrowing and nursery rooms. In the batch preceding the vaccine trial, the post-weaning mortality due to ED was 8.9% (35 dead weaners of 392 weaned pigs). The diagnosis was based on gross pathology showing typical lesions of edema in predilection sites (subcutaneously in the palpebrae and

over the frontal bones, in the mesocolon and gastric submucosa), and verified through serotyping E. coli O139 and PCR detection of genes for F18 fimbriae and Stx2e toxin. A batch of 33 litters with 350 weaned pigs was systematically randomized by litter and included in the vaccine trial. Twenty-four litters (250 weaned pigs) were vaccinated once with 1 ml ECOPORC SHIGA intramuscularly on day 4–7 post-partum. The remaining 9 litters (100 weaned pigs) were unvaccinated control animals.

## Results

The mortality caused by ED in the unvaccinated control group was 6%. No pigs died because of ED in the group of vaccinated pigs (Fisher's exact test: p-value < 0.001). One

pig died in the vaccinated group the day before transfer to the finishing farm, but a field necropsy revealed a mesenteric torsion in this pig.

## Discussion/conclusion

In this field trial vaccination with ECOPORC SHIGA eliminated ED related mortality in a group of 250 pigs. In the same batch of weaned pigs, the ED related mortality was

6% among unvaccinated control animals. Edema disease was confirmed as the major cause of mortality in the case herd. ■