

# Investigation of the Long-Term Effect on Overall Mortality and Antimicrobial Intake in Weaned Piglets after Vaccination against Edema Disease in a Dutch Field Trial



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Edema Disease (ED) caused by Shigatoxin Stx2e producing strains of *E. coli* is responsible for high mortality during nursery stage worldwide. Due to antibiotic resistances and the peracute course of the disease therapeutic and metaphylactic treatment with orally given antibiotics is mostly not satisfying. A single vaccination of piglets from an age of 4 days with 1 ml of the newly developed vaccine ECOPORC SHIGA induces neutralising antibodies against Stx2e and ensures protection from ED throughout the entire nursery period. A longitudinal field study was conducted on a Dutch farrowing and nursery farm in order to compare the Overall Mortality and the amount of used antibiotics, expressed as Defined Daily Dose per year (DDD/y), within nursery for the time of 1 year under vaccination with ECOPORC SHIGA to the period of 1 year prior to vaccination. Prior to vaccination cases of ED had occurred in piglets at about 10 – 14 days after weaning. Pathological examinations and subsequent PCR tests confirmed the diagnosis. In total 17977 piglets of 52 week groups were vaccinated once with 1 ml of ECOPORC SHIGA at the average age of 4 days. Overall Mortality in nursery period was evaluated as all deaths from the entirety of weaned piglets regardless the presumed cause of death.

The DDD/y, recorded by a centralised registration system, was calculated monthly on farm level for the same period of time. Additionally, the amount of used colistin sulfate was recorded during the trial and the mean piglet weight evaluated from all sold pigs at the end of nursery period was compared to weight data from all sold pigs 1 year prior to the trial. No changes were made regarding feed composition or other conditions. The Overall Mortality of  $7.7\% \pm 2.70$  prior to vaccination with  $5.9\%$  only due to ED was reduced significantly to a mean value of  $1.4\% \pm 0.62$  ( $p < 0.0001$ ). Shortly after implementation of the vaccination the use of colistin sulfate could be stopped completely. As a result the previous DDD/y of  $12.6 \pm 5.7$  was reduced significantly to a DDD/y of  $2.3 \pm 2.1$  ( $p < 0.0001$ ) so that the farm could leave the yellow section of the benchmark system to be classified into the green section. With the same mean duration of 7.5 weeks in nursery the vaccinated animals showed a weight of 25.4 kg at the end of nursery period compared to the unvaccinated animals with 25.3 kg. Vaccination with ECOPORC SHIGA is an effective tool to reduce mortality due to ED and to lower the use of antibiotics in modern pig husbandry. ■