Results of a Field Trial for Vaccine Against Edema Disease

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Shigatoxin producing E. coli (STEC) induce edema disease in pigs, mostly during the time after weaning. After attaching with fimbria adhesins F18 at the intestinal cell wall, toxic Shigatoxin (Stx2e) is produced, that penetrates into the bloodstream and causes major organ damages. Because treatment of Stx2e diseased pigs is mostly not effective, prophylaxis is of great importance.

The recombinant subunit vaccine ECOPORC SHIGA (IDT Biologika GmbH, Dessau-Rosslau Germany) was tested for safety and efficacy in a field trial in two runs. In the affected farm the mortality rate due to edema disease temporarily reached 25 % despite oral antibiotic medication. 336 randomly selected piglets were either blinded vaccinated with 1 ml (i. m.) at the age of 4 days (n = 167) or served as placebo treated control animals (n = 169). Piglets were weaned at the age of 28 days. Blood samples were taken at weaning to measure protective antibodies against Stx2e.

No adverse reactions to the vaccine were observed. No occurrence of edema disease was observed during the first run. In the second run mortality due to edema disease was 13.5 % in the control group and 1.4 % in the vaccinated group ($p = 0.009$). At weaning 100 % of the vaccinated pigs and 13.3 % of the control pigs and at the end of nursery period 92.6 % of the vaccinated and 7.7 % of the unvaccinated pigs showed neutralising antibodies against Stx2e ($p < 0{,}001$).

Vaccination against edema disease represents a safe and effective tool to reduce mortality due to edema disease and antibiotics on affected farms. ▪