Side-by-side comparison of the effect of two commercial *E. coli*-sow vaccines on the incidence of piglet diarrhoea in the first four weeks of life

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Introduction

Fimbrial types F4 and F18 are the most prevalent among enterotoxic *E. coli* isolated from suckling and weaned piglets with diarrhoea. *E. coli*-F4 can induce diarrhoea and increased mortality in all phases of the suckling period and after weaning. The adhesion of F18 fimbriae to enteric receptors, however, increases in late lactation and persists beyond weaning. This field observation investigated the efficacy of two commercial vaccines to reduce the incidence of piglet diarrhoea in the first 4 weeks of life in a side-by-side comparison.

Materials and Methods

Due to diarrhoea observed regularly in individual piglets, despite sow vaccination with a Coli-mono vaccine (Porcilis® Porcoli DF, MSD), a field investigation was initiated in a 180-head sow farm in Southern Germany. Sows were either vaccinated with vaccine A (Porcilis® Porcoli DF, n=47) or vaccine B, a new Coli-Clostridia-combination (Entericolix®, Boehringer Ingelheim, n=43). A diarrhea event in a litter was defined as at least one piglet suffering from diarrhoea; those were recorded once per day during the 4-week lactation period.

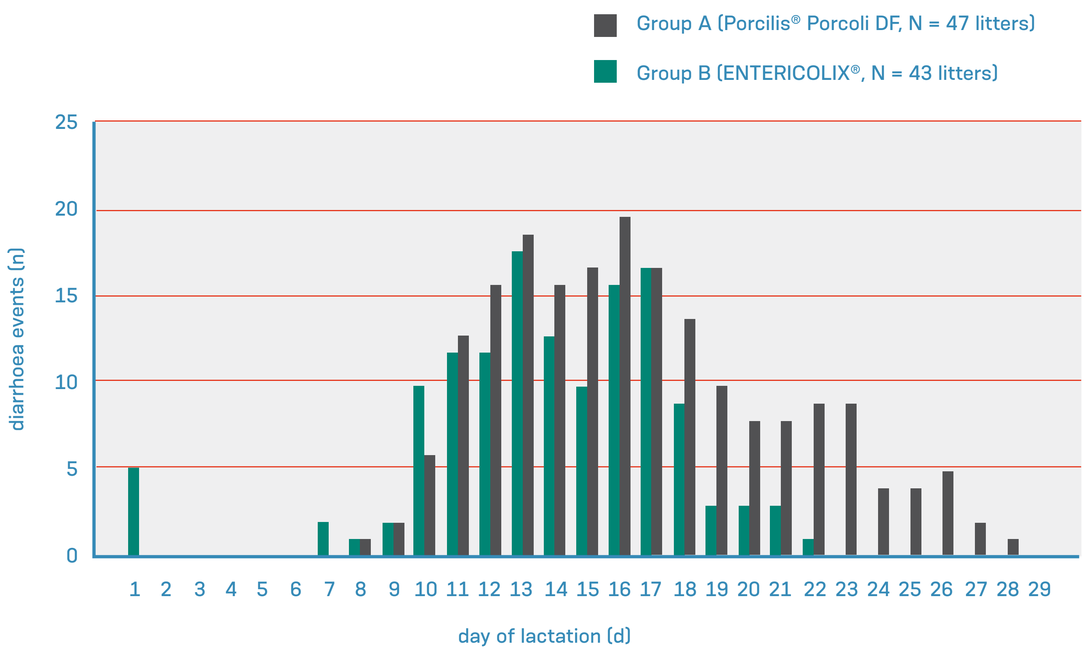
Results

In the early lactation period (1st and 2nd week of life) the piglets of both groups A and B showed the same number of diarrhoea events (n = 73). In late lactation (third and fourth week of life) the litters of group B, that were also protected against *E. coli* F18 via maternal antibodies, showed 50% less diarrhea events (group A: n=124; group B: n=62).

Table 1. Number of diarrhoea events in groups A and B during the early and late lactation periods.

	early lactation period	late lactation period
Group A Porcilis® Porcoli DF	73	124
Group B Entericolix®	73	62

Graph 1. Diarrhoea events in group A and B during the lactation period.



Picture 1, 2. Vaccination with Entericolix® in group housed sows. Litter without diarrhea.

Discussion and Conclusion

Under the conditions of this field investigation vaccine B was more effective in reducing piglet diarrhoea during the second half of the lactation period than vaccine A. Vaccine A contains *E. coli* fimbrial types F4, F5, F6 and is registered for the reduction of neonatal diarrhea during the first days of life. Vaccine B contains, in addition, F18 fimbriae and immunity lasts for at least 21 days against F4, F5, F6, F18ac, F41 and at least 28 days for F18ab. It is unlikely that the differences are linked to the additional clostridial component in vaccine B, as clostridia-related-diarrhoea typically occurs in the first half of lactation. It is more likely that the effect is linked to the additional F18 fimbriae and a long lasting maternal immunity. After termination of the field investigation, Toltrazuril against *Isospora suis* was implemented and this use further reduced diarrhoea events. From an economic point of view sow vaccines are of high interest in piglet producing farms and should provide the broadest antigen spectrum needed and a long duration of immunity.