Experiences with serological response and safety, after simultaneous and concurrent use of Porcilis® Rota and Porcilis® ColiClos in pregnant sows under commercial conditions

I. Tardio[1], L. Cons[1], S. Cregenzan[1], L. Oliva[1], D. Mitjavila[1], J. Aibar [1]

[1] Cincaporc

IMM-CP-02

Background & Objectives

Rotavirus A and enterotoxigenic *Escherichia coli* (ETEC) are **major causes of neonatal diarrhea in piglets**. Vaccination of pregnant sows is used to enhance lactogenic immunity. Mixing vaccines can streamline workflows, but **requires evidence of safety and non-inferior immunogenicity** and that was the goal of the study.

Materials & Methods

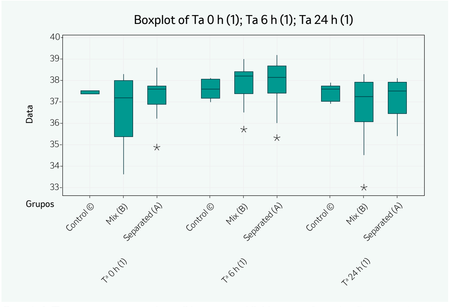
A field trial in a 5,000-sow DanBred farm: primiparous sows in Control (no vaccination; n=5) CG, Separate Porcilis® Rota and Porcilis® ColiClos at different sites (n=20) SG, and mixed administration before injection (n=20) MG. Two doses: first 4 weeks pre-farrowing, revaccination 2 weeks later. Safety: rectal temperature, feed intake, local/systemic reactions. Immunogenicity: serum antibodies to Rotavirus A and *E. coli* (F4 (K88AC/AB), F5 (K99), 987P, LT(heat-labil enterotoxin)) in sows at three timepoints and piglets (CG n=6, SG n=18, MG n=18).

Figure 1: Diagram of the study vaccination, blood-sampling wand safety protocol

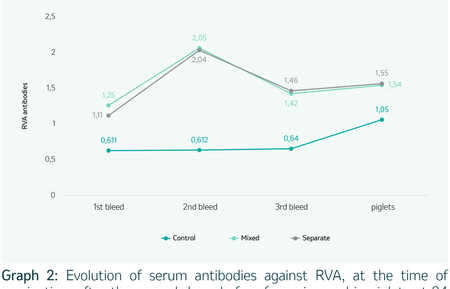
Results

Safety was acceptable in all groups. Post-vaccination temperature increases did not differ significantly among groups after dose 1 (0h p=0.540; +6h p=0.461; +24h p=0.701 across comparisons) or revaccination (0h p=0.620; +6h p=0.331). All animals maintained normal feed intake; no local or systemic reactions were observed.

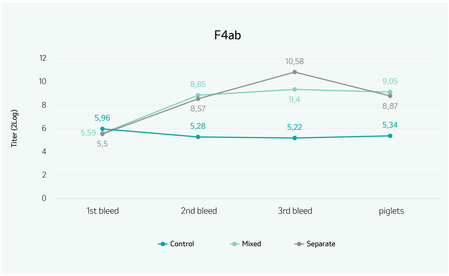
Rotavirus A, vaccinated groups (MG vs SG) showed similar antibody levels at all timepoints and were higher than controls: first bleed 1.25 vs 1.11 (p=0.021), second bleed 2.05 vs 2.04 (p=0.018), third bleed showed a trend 1.42 vs 1.46 (p=0.069). Piglet antibody levels were also higher in vaccinated groups (mixed 1.54; separate 1.55) versus control (1.05). E. coli antigens, vaccinated groups mounted robust responses across F4AC, F4AB, F5, F6, and LT, with similar titers between mixed and separate administration and clearly exceeding controls at all measured timepoints.



Graph 1: Temperature study at 6 hours and 24 hours after the first vaccination in the three trial groups



Graph 2: Evolution of serum antibodies against RVA, at the time of vaccination, after the second dose, before farrowing and in piglets at 24 hours of age

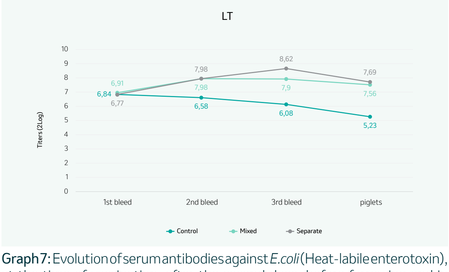


Graph 3: Evolution of serum antibodies against *E.coli* (F4ab fimbriae), at the time of vaccination, after the second dose, before farrowing and in piglets at 24 hours of age

Graph 4: Evolution of serum antibodies against *E.coli* (F6 fimbriae), at the time of vaccination, after the second dose, before farrowing and in piglets at 24 hours of age

Graph 5: Evolution of serum antibodies against *E.coli* (F4ac fimbriae), at the time of vaccination, after the second dose, before farrowing and in piglets at 24 hours of age

Graph 6: Evolution of serum antibodies against *E.coli* (F5 fimbriae), at the time of vaccination, after the second dose, before farrowing and in piglets at 24 hours of age



Graph 7: Evolution of serum antibodies against *E.coli* (Heat-labile enterotoxin), at the time of vaccination, after the second dose, before farrowing and in piglets at 24 hours of age

Control vs Vaccinated groups (mix or separated) statistical differences

RVA: Piglets no significant differences. Sows were significantly higher in vaccinated groups at the 1st, 2nd and 3rd points ($p < 0.05$).

F4ab: Sows, time points 2-3 ($p < 0.05$); piglets, NS ($p = 0.142$).

F4ac: Sows, time points 2-3 ($p < 0.001$); piglets, NS ($p > 0.05$).

F5: Sows, time points 1-3 ($p < 0.001$); piglets, NS ($p = 0.253$).

LT: Sows, time points 2-3 ($p < 0.001$); piglets ($p = 0.015$).

F6: Sows, time points 2-3 ($p = 0.002$); piglets, NS.

Discussion & Conclusion

Mixing Porcilis® Rota with Porcilis® ColiClos for co-administration in pregnant sows was safe and elicited antibody responses comparable to separate administration and superior to no vaccination.
These data support combined use to simplify farm management without compromising safety or immunogenicity under field conditions.