



Effect of seaweed products on weaner pig productivity

Gizaw Dabessa Satessa, Hanne Helen Hansen, Rajan Dhakal, Morteza Mansouryar, Søren Kjærulff, Paulina Tamez, Julie Krogsdahl Bache, Niels Jørgen Kjeldse and Mette Olaf Nielsen

gizaw.satessa@sund.ku.dk

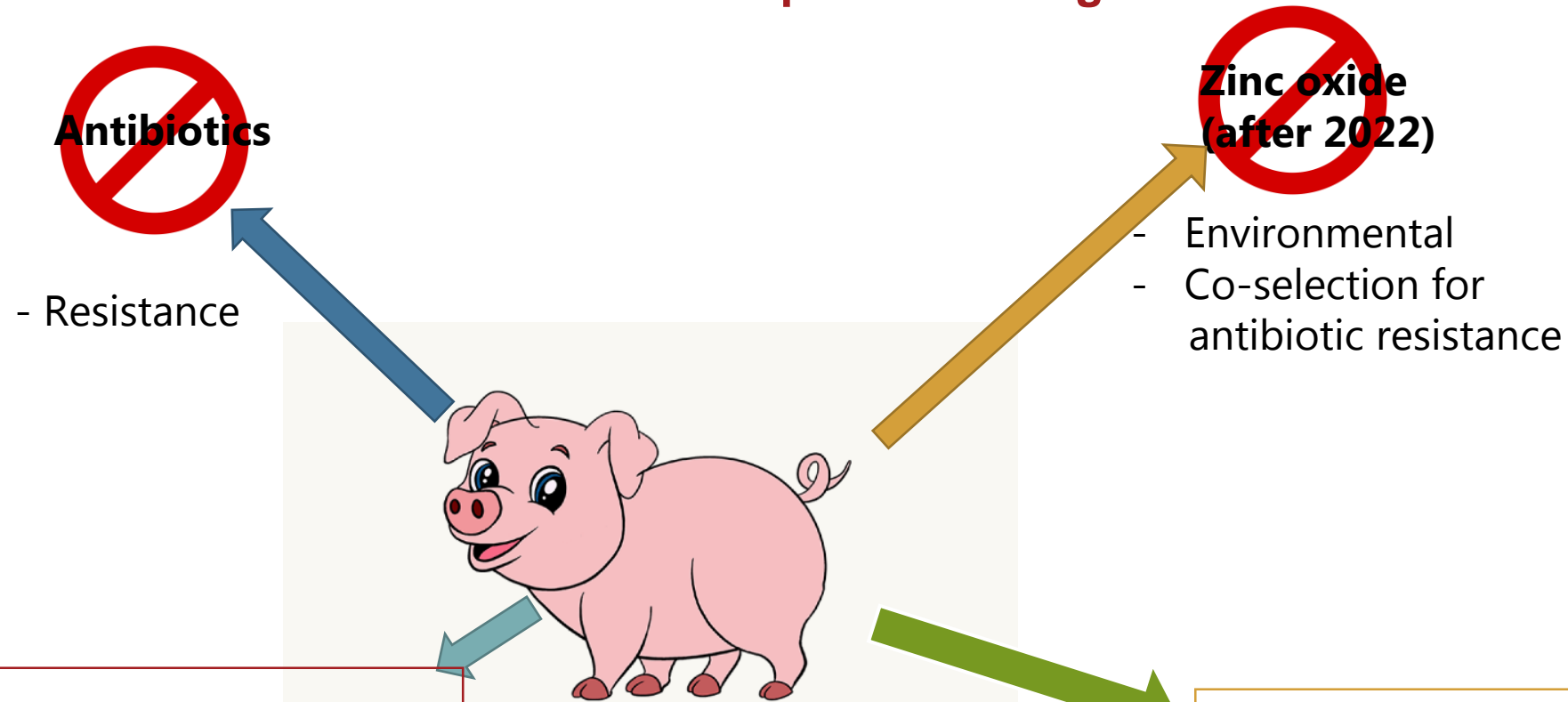
09 October 2019

UNIVERSITY OF COPENHAGEN



Introduction- THE PROBLEM

Potential remedies for post-weaning disorders



- Our focus**
- Macroalgae products
 - Fermented rapeseed with or without macroalgae
 - Others (Probiotics and synbiotics & low dose ZnO)

- Options ??**
- No perfect replacement yet

Introduction

- Three experiments were conducted to test whether macroalgae products can replace medicinal ZnO during weaning in pigs- all three investigated productivity and gut health.
- **Experiment 1: Can a macroalgae product or other commercial probiotics and synbiotics replace medicinal ZnO?**
- **Experiment 2: Can fermented rapeseed or its combination with macroalgae products substitute medicinal zinc in weaner piglets?**
- **Experiment 3: LARGE SCALE: Can fermented rapeseed or its combination with macroalgae products substitute medicinal zinc in weaner piglets?**

Productivity

Experiment 1: Performance 11 days post-weaning

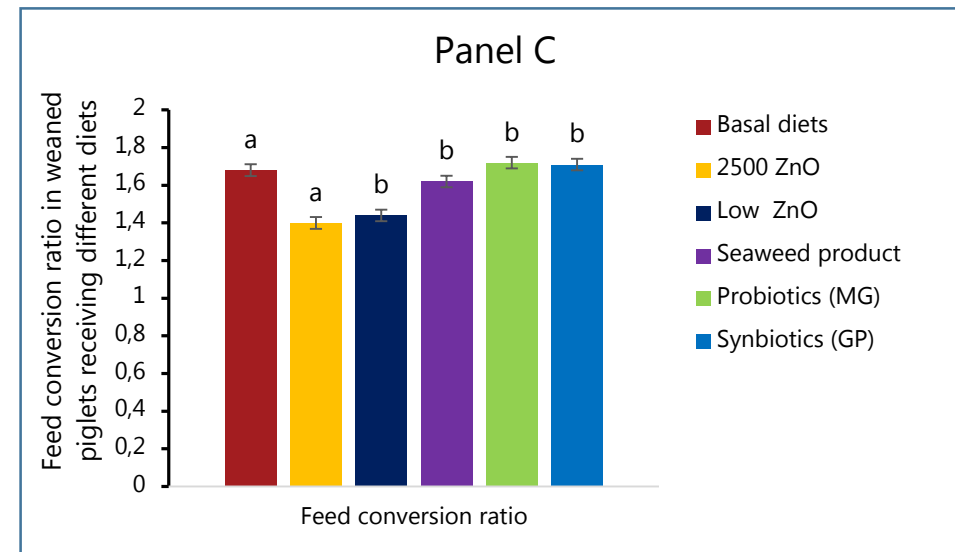
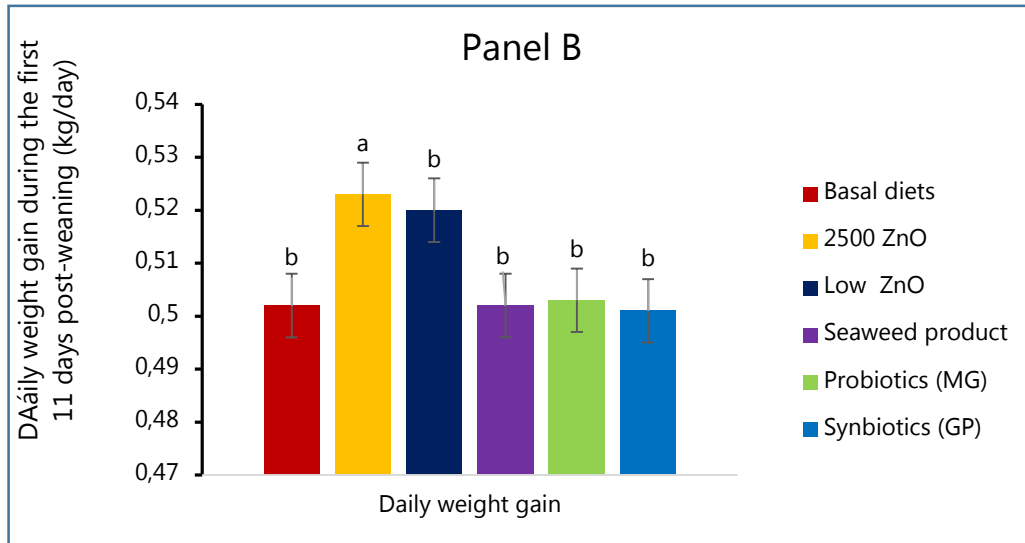
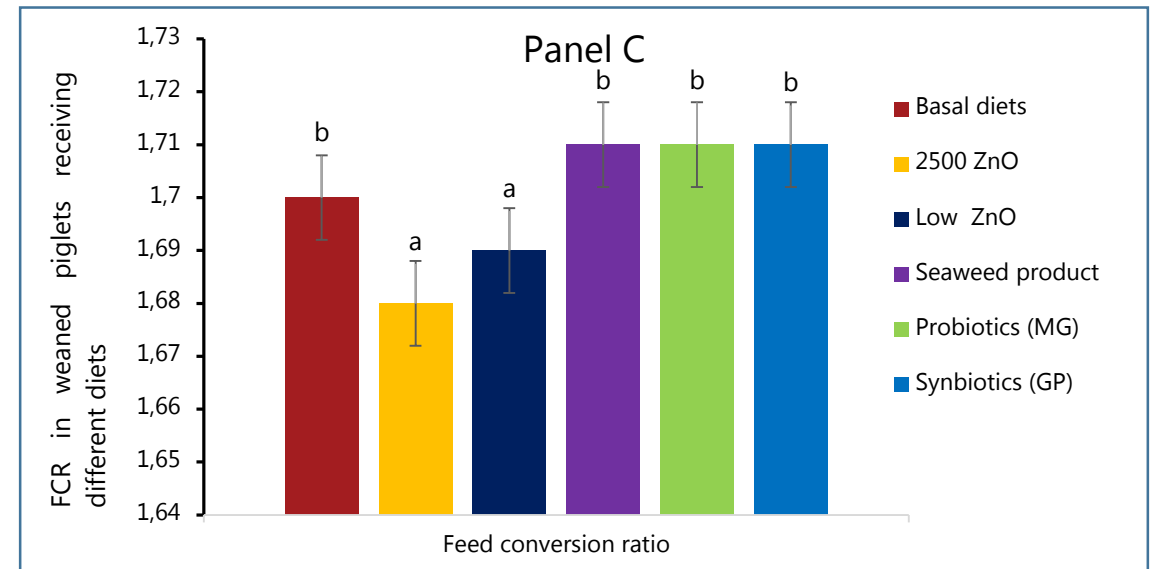
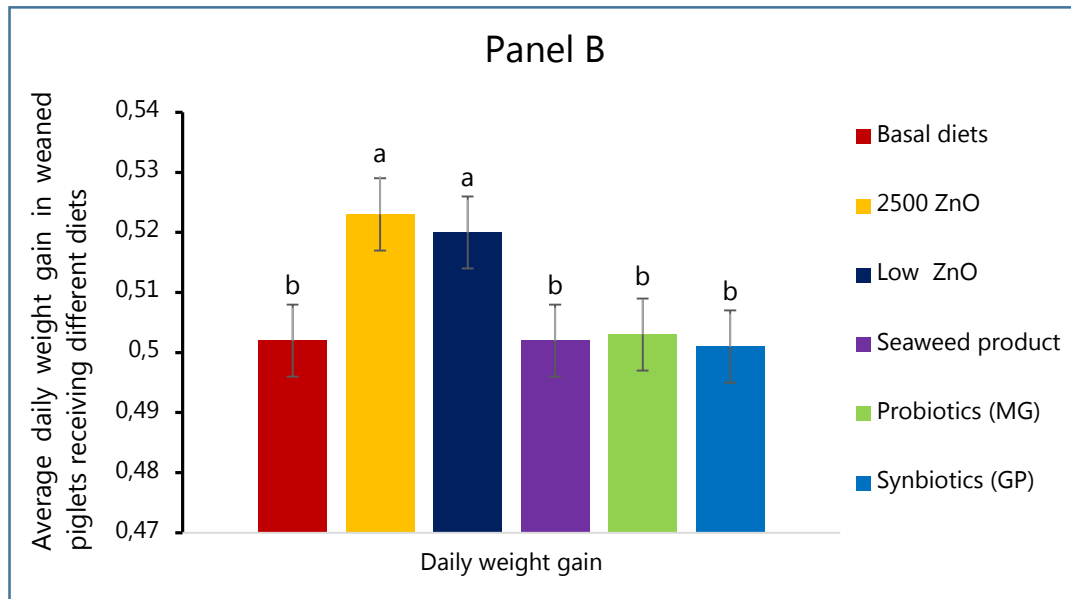


Figure 1. Effect a macrolagae and other dietary additives on weaning piglet performances (Panel B, C) during the first 11 days post-weaning.

Experiment 1: Performance during the period 0 to 52 days post-weaning

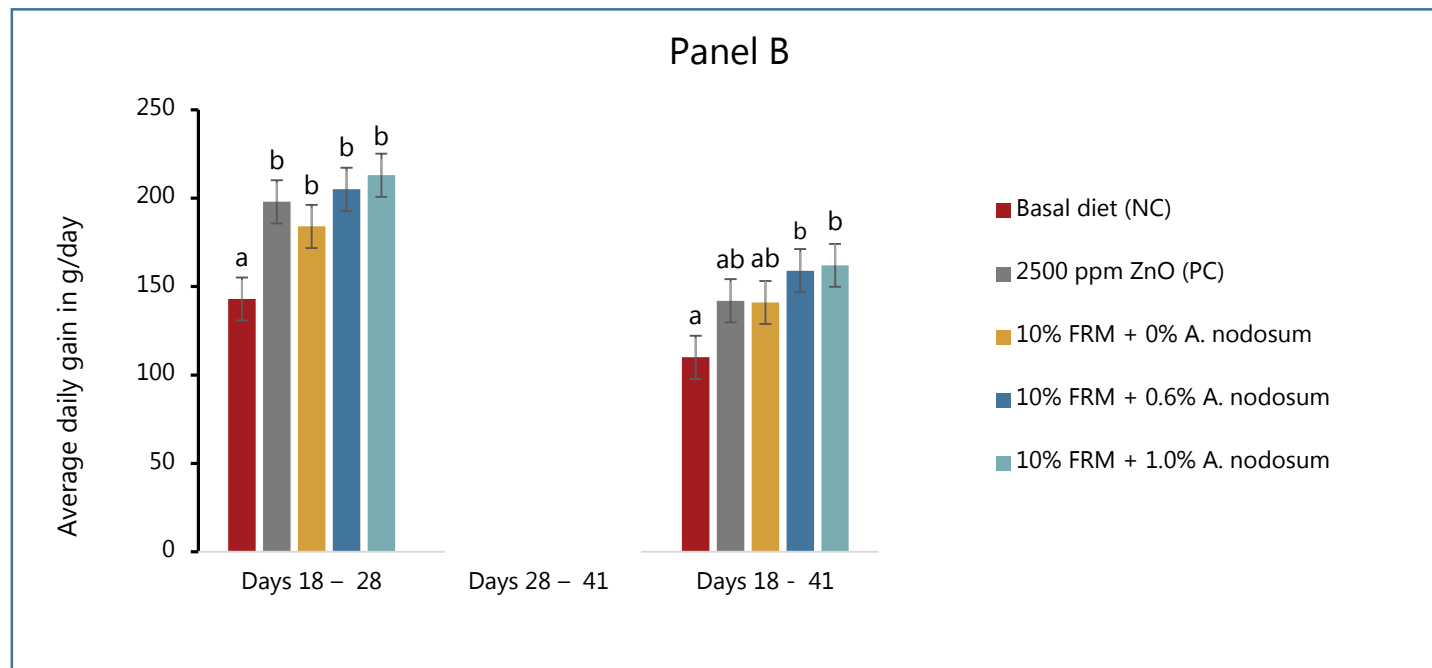


Conclusion: We can reduce dose of ZnO but other products cannot substitute

Figure 2. Effect a macrolagae and other dietary additives on weaning piglet performances (Panel B and C) during the first 11 days post-weaning.

Experiment 2: Performance : Fermented rapeseed (FRM) and FRM with *Ascophyllum nodosum*

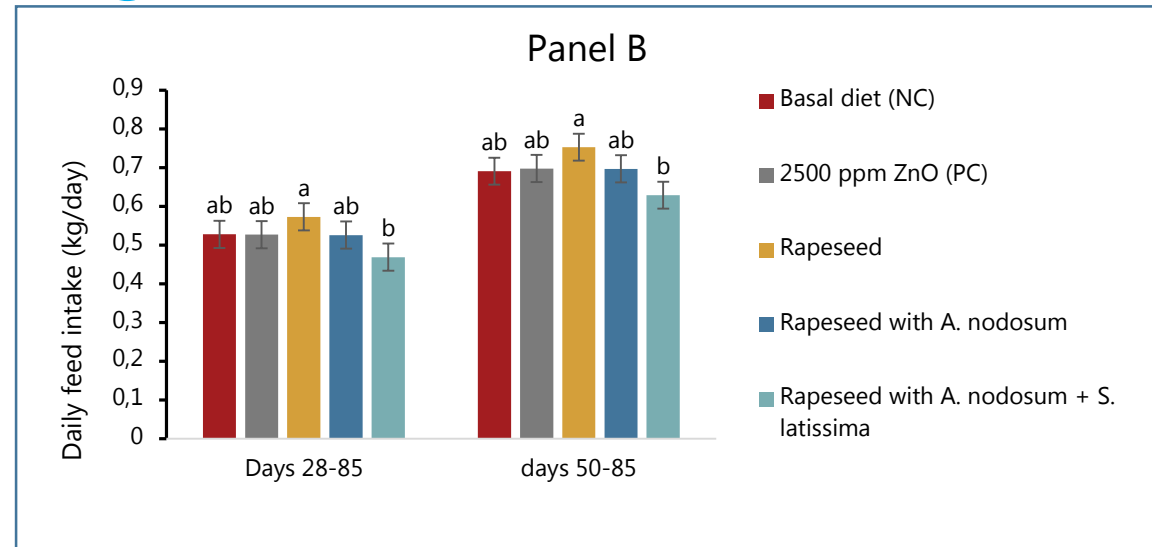
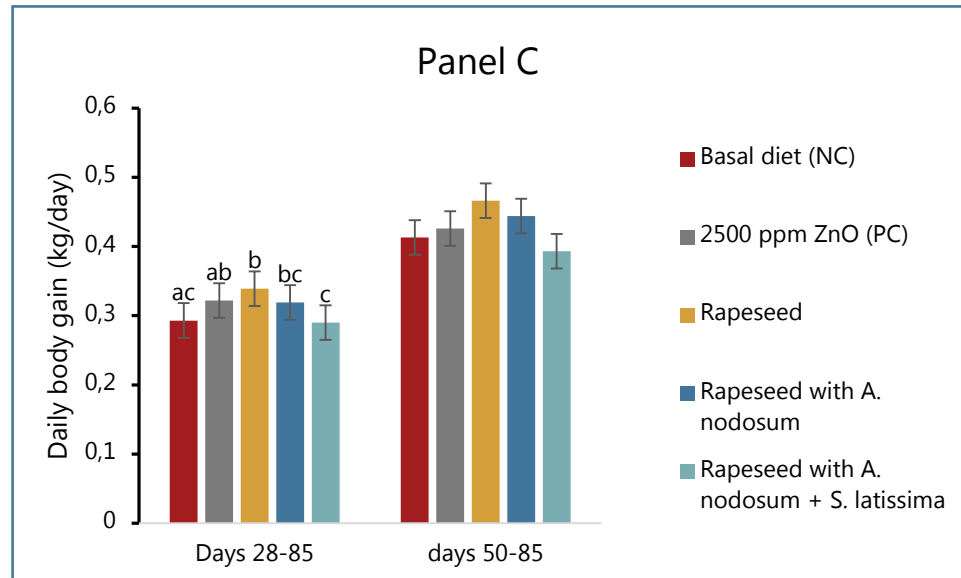
–FRM was as effective as using full dose ZnO (PC) in improving body weight gain (first 10 days preweaning and 14 days post-weaning)



–Inclusion of *Ascophyllum nodosum* in 10% FRM showed no effect on weight gain throughout

Figure 3 Effects of 10% fermented rapeseed with increased dose of *Ascophyllum nodosum* on daily piglet weight gain

Experiment 3: Large scale : Performance



- FRM and FRMA piglets demonstrated similar overall performance to full dose zinc
- FRMAS reduced BW (d 85) and daily body gain (days 28-85)
- % of piglets that completed the experiment was unaffected by dietary treatments

Figure 4. Effects of FRM with or without maroalgae on performance during experiment (weaning at 28 days to exit at day 85)

GUT HEALTH

Experiment 1: Gut histomorphometry

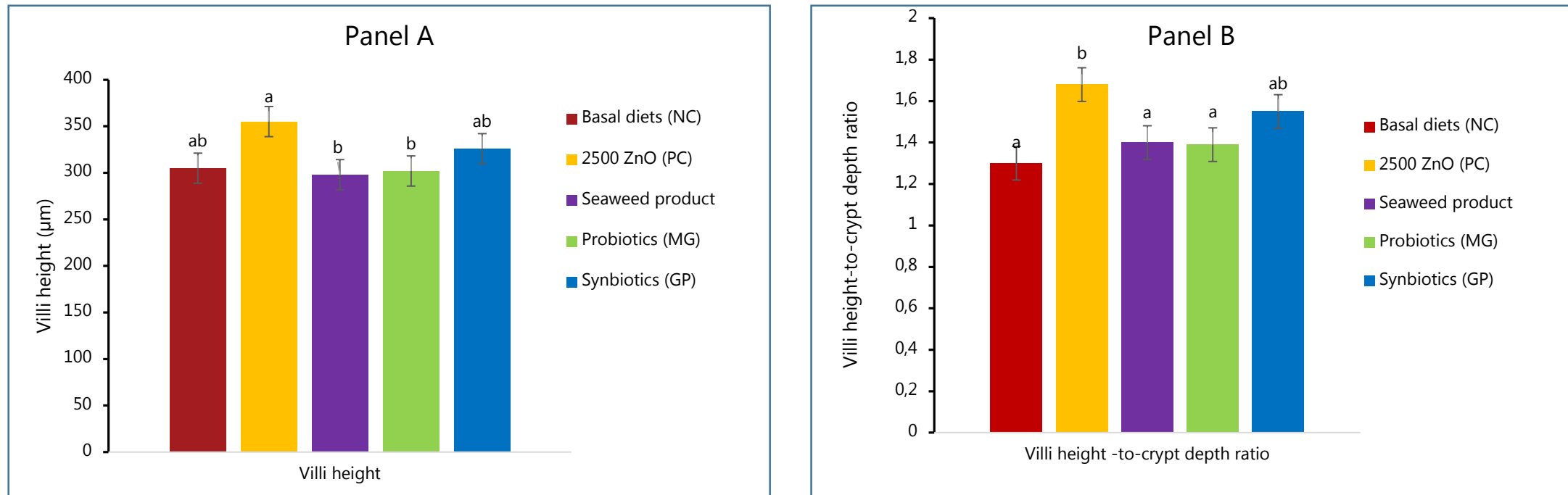
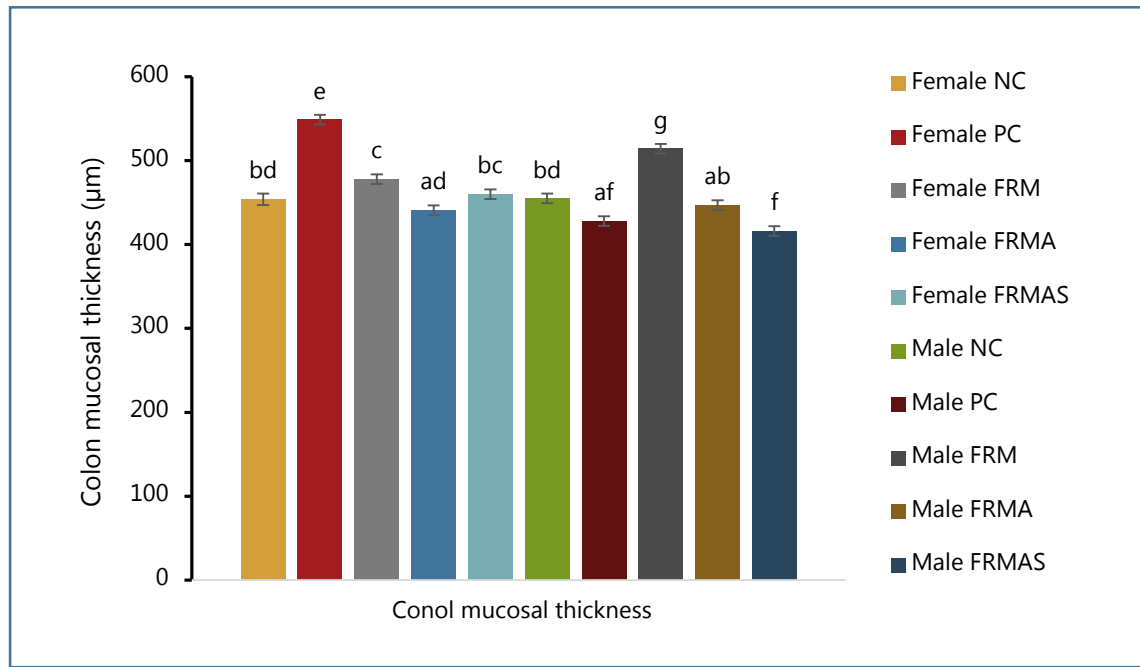


Figure 3. Effects of feed additives on intestinal morphology (Panels A and B) of piglets 11 days post-weaning

Gut histomorphometry...Cont'd



- Colon mucosal thickness was significantly improved by FRM but reduced by FRMAS

Figure. Effect of FRM alone or in combination with macroalgae on colon mucosa thickness at 21 days post-weaning

Experiment 1: Conclusion

- The macroalgae product (OceanFeed swine, OFS), the probiotic and synbiotic products cannot substitute medicinal ZnO
- But ZnO dose can be reduced by 40% (from 2500 to 1500 ppm)

Experiment 2+3 : Conclusion

- Inclusion of *Ascopyllum nodossum* did not improve performance beyond what was achieved by 10%FRM and abolished good effect of FRM gut villi and other gut parameters

THANK YOU FOR YOUR ATTENTION!