Effect of bovine colostrums of 1st , 2nd and 3rd milking on growth performance and the immune system of newly-weaned piglets after an *E. coli* LPS challenge

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Introduction

BOVINE COLOSTRUM (BC) = Alternative to in-feed antibiotics for the newly-weaned piglet

➔ High concentrations in: - Growth promoters
- Anti-microbial factors

➔ Availability in Belgium

Effects are dependent on the pathogen pressure

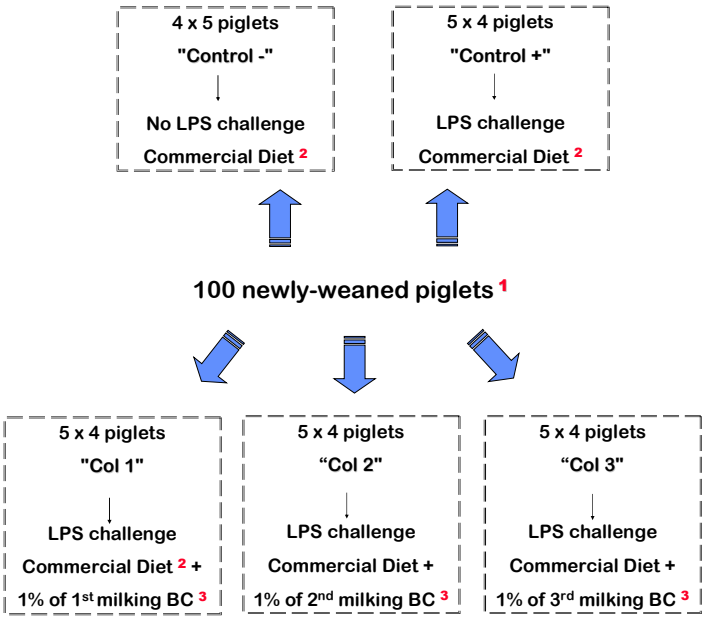
➔ Challenge with *E. coli* LPS

BC of 1st milking is used for calves

➔ Valorisation of 2nd and 3rd milking BC which are not collected by the dairy

Material and Methods

Experimental design



LPS challenge: 100 µg of *E. coli* LPS/kg of BW by i.m on d 5 PW

BC supplementation: 1 % of the diet from days 0 to 12 PW

Measures

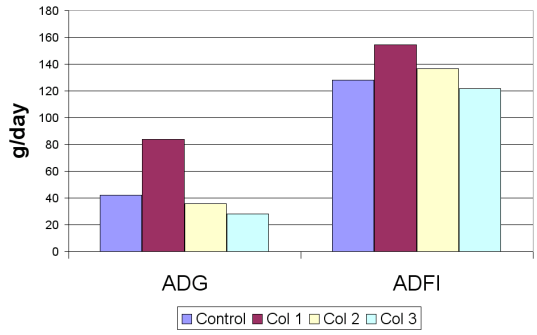
- Individual Weight (n = 20) and feed intake (n = 4 or 5)
- Blood (n = 10): haematological parameters
  IgA, IgG, IgM (total and anti-LPS)
  Cytokines: IL-10, TNF-α and IFN-γ

Results

BC composition

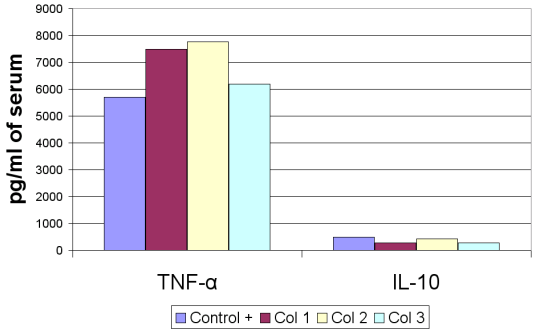
Composition (g/kg DM)	Colostrum 1	Colostrum 2	Colostrum 3
Crude Protein	723	673	556
Ash	64	70	81
IgA	103	56.3	30
IgM	40	27	10.5
IgG	376	175	78
Lactoferrin	7.2	14.5	10.9
IGF-I	2040 ng/g	1040 ng/g	400 ng/g

Before the LPS Challenge (Days 0-5 PW)



After the LPS Challenge

- Important inflammation
- 25% of the piglets died



Conclusion

Before the LPS challenge: Col 1 > Col 2 and 3

After LPS challenge: no interpretation possible

➔ New experiment in real rearing conditions

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