



## Early indications of iron deficiency in piglets at weaning

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# PROCEEDINGS

## 6<sup>TH</sup> EUROPEAN SYMPOSIUM OF PORCINE HEALTH MANAGEMENT

SORRENTO - ITALY  
7th - 9th May, 2014

## WELCOME FROM THE PRESIDENT

Dear Colleagues,

On behalf of the Organizing Committee, I am very delighted and honored to welcome all delegates, partners and supporters to the 6<sup>th</sup> European Symposium of Porcine Health Management in Sorrento, Italy.

I recognize that the European Symposium and its scientific sessions are principally designed to enhance the development of the porcine industry within Europe. These annual gatherings enable the building of a productive dialogue between the organizing Institution and their members. They also provide an invaluable opportunity for networking and fruitful contacts between researchers and practitioners.

Over the years, since the first edition in Copenhagen in 2009, the Annual Symposium of the European College of Porcine Health Management has quickly evolved from a meeting attended by the diplomates of the College only to the first major event organized in Europe jointly by the European College and the European Association. In the last two editions, held in Bruges and Edinburgh in 2012 and 2013, respectively, the number of participants increased significantly (around one thousand) and more than 250 abstracts were submitted.

This is the sixth edition and the first time that the symposium is being held in Italy. We are delighted to be given the opportunity to host this meeting and we are pleased that as many as 1300 delegates are in attendance - coming from Europe, North and South America and Asia. Every year the European Symposium experiences an increasing attractiveness, a clear indication of the positive feedback on the efforts loaded by the European College and Association.

More than 300 scientific contributions have been submitted and 52 of those have been asked to be orally presented in 10 sessions. The attractive scientific program is completed by 10 keynote lectures by internationally renowned speakers aimed at presenting the most recent and debated issues on porcine health management, including both the latest on science and practical aspects about innovation and biotechnology in porcine health management, antibiotic and feed management, "man-created" diseases and emergencies at EU borders, namely African Swine fever and Trading diseases. The right combination of science and practice is the key element of the success of the annual symposium.

This year the College celebrates the 10<sup>th</sup> anniversary from its founding. It was in Hamburg in 2004 at the IPVS that the fathers of the College met and decided officially to establish the College. In 10 years we have come long way. Step by step, we have achieved the full recognition by the EBVS in 2013 and nowadays things are going smoothly.

I wish to express my gratitude to all delegates for their full scientific contributions to the 6<sup>th</sup> ESPHM. I take this opportunity to thank the industrial partners for accepting to participate and providing the necessary funding. Special thanks to the members of the Scientific Committee, the members of the Boards of the College and the Association and to the board of the reviewers. Their efforts have been a key element for the scientific success of this symposium.

I realize that you are fully dedicated to the scientific sessions that will follow but I do hope you will also take time to enjoy fascinating Sorrento area with its typical setting, friendly people and excellent cuisine.

I wish the participants a very fruitful and productive symposium, sure to leave all enriched.

Sorrento, 7<sup>th</sup> of May 2014

**Paolo Martelli**

President of the 6<sup>th</sup> ESPHM



## O21 EARLY INDICATORS OF IRON DEFICIENCY IN PIGLETS AT WEANING

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**Introduction.** Iron supplementation regimes for newborn piglets are very standardized with little focus on variations in birth weight, growth rate or weaning age in individual herds. Since the requirement for iron increases with increasing body weight, the larger piglets are more prone to iron deficiency around weaning when iron stores following injections in the first days of life may have depleted. The objective of the current study was to determine if big piglets at weaning are at higher risk of iron deficiency than the smaller ones.

**Materials and Methods.** Five Danish herds (with minimum herd size of 1000 sows) administering injectable iron supplementation were randomly selected. Within each herd, 20 litters around weaning were selected randomly and from each litter, three piglets were selected; the biggest piglet, a random piglet and the smallest piglet. Random piglets were identified as the sixth individual when counting snouts from the pen side of the observer, while the biggest and smallest piglet was judged visually. EDTA- and non-stabilized blood was collected from each piglet and serum iron, total iron binding capacity (TIBC) and haemoglobin levels were determined.

**Results.** A total of 296 piglets were included in the study. The serum iron concentrations were 19.90 (13.50 SD), 25.11 (12.38 SD) and 24.56 (11.58 SD)  $\mu\text{mol/L}$  in big, random and small piglets, respectively. TIBC levels in big, random and small pigs were 88.64 (17.32 SD), 82.02 (18.36 SD), and 72.50 (19.42 SD)  $\mu\text{mol/L}$ , respectively. The haemoglobin concentrations in big, random and small piglets were 119.64 (15.5 SD), 121.50 (15.11 SD) and 121.50 (13.19 SD) g/L, respectively. Statistically, serum iron was lower in big piglets compared to random ( $p=0.004$ ) and small piglets ( $p=0.009$ ). TIBC was higher in big piglets compared to random ( $p=0.01$ ) and small piglets ( $p<0.0001$ ) and the level in random piglets was higher compared to small piglets ( $p=0.0004$ ). No significant differences in haemoglobin levels were observed among the three types of piglets ( $p=0.63$ ).

**Discussion.** The decrease in serum iron and increase in TIBC in piglets with increasing size indicates that iron is utilized faster in bigger piglets making them prone to iron deficiency. However, haemoglobin levels were not different among types of piglets, which probably explains that a fall in haemoglobin will occur later than a fall in serum iron and rise in TIBC in case of iron deficiency. The results suggest that serum iron and TIBC values may be used as potential indicator of early iron deficiency in weaning piglets.

### NOTES

Hb is not  
a safety  
indicator  
of iron-deficiency.

Piglets are  
born with little  
iron. Saw mats  
until litter iron

\* Piglet with  
obvious anaemia