



## Uniferon Best Practice Recommendation

### Definition of anaemia & iron requirement

Anaemia is a condition with lack of iron-carrying haemoglobin in the red blood cells. It typically occurs when the piglet's iron stores are depleted. It can also occur when exposure to stress conditions prevents the build-up of haemoglobin or increases the degradation of haemoglobin in the piglet.

Although most published intervals are comparable, the normal ranges for blood parameters of pigs are quite wide (10g/dl – 16g/dl with an average of 13g/dl). This may be due to sex, breed, growth rate, diet, age, stage of gestation or lactation, feeding method, management practises or season. Interpretation of haemoglobin levels requires consideration of these factors.

#### Iron deficiency anaemia

Iron deficiency anaemia in piglets may vary from a subclinical (can only be verified by blood-testing) to clinical (visible by clinical examination) anaemia.

Clinical iron deficiency anaemia: Hb < 90g/l  
Sub-clinical iron deficiency anaemia: 90g/l > Hb < 110g/l

A blood haemoglobin concentration below 90 g/l in piglets at weaning may be used to define cases of severe anaemia. And even though this level is reached, there may still be positive production effects to be seen from higher

haemoglobin values due to improved oxygen transport, immune function, vitality and metabolism in the piglets as haemoglobin levels increase. Therefore, an optimal haemoglobin blood concentration may be better defined as 110 g/l in order to maintain levels higher than the cut-off value for sub-clinical iron deficiency anaemia.

#### Iron requirement calculations

Iron content per pig <sup>1</sup>	= Blood iron + Body iron (25% of blood iron)
Blood iron	= Blood volume * body weight * haemoglobin level * iron content
Blood volume:	9% of body weight
Body weight:	weight in kg
Haemoglobin level:	xx g/l
Iron content:	3.4 mg Fe/g Hb
<b>A:</b> 7 kg weaners (90g/l):	$((9\% \times 7) \times (90 \times 3,4) \times 1,25) = 240 \text{ mg}$
<b>B:</b> 7 kg weaners (110g/l):	$((9\% \times 7) \times (110 \times 3,4) \times 1,25) = 295 \text{ mg}$

<sup>1</sup>Jens Peter Nielsen et. al. (2013) "Herd diagnosis of anaemia and iron deficiency in piglets" Poster at the 5<sup>th</sup> European Symposium of Porcine Health Management, ESPHM 2013

Sincerely  
The Uniferon Team