International Pig Topics

Pighealth BYTES

Your own reference source on pig health

ESPHM 12th EUROPEAN SYMPOSIUM OF PORCINE HEALTH MANAGEMENT

Number: 174

Vaccinology X

The metabolic cost of infection: answering questions

The subject of Pighealth Bytes 171 gave rise to a number of questions and those most frequently asked are dealt with in this Pighealth Byte. Firstly the relation between Metabolic Cost of Infection (MCoI) and parameters like Average Daily Gain (ADG) and Average Daily Feed Intake (ADFI) was raised and, secondly, if this concept of MCoI is only applicable for viral infections.

For those interested in a good overview it is advisable to read the Meta-analysis of feed intake and growth responses of growing pigs after a sanitary challenge, which was written by H. Pastorelli et al and published in Animal (2012), 6:6, pp 952-961. In short, they describe that every sanitary challenge has an impact on both the ADG and the ADFI, leading to negative economic consequences for that production unit.

Sometimes the relation between the ADFI and the ADG is linear, meaning that the lower growth performance (ADG) can be explained by the lower feed intake (ADFI) and sometimes the reduction in growth is much bigger than could be expected based on the lower feed intake. In such a case there are other activities in the body of the pigs that need nutrients, which are then no longer available for growth. Also, essential feed nutrients can leak away when there are, for example, digestive disorders, lowering the ADG.

To answer this first question: the metabolic cost of infection (MCoI) is the outcome of the sanitary challenge on the balance between ADFI and ADG. When the ADG is lower than could be expected based on the (lower-) ADFI, metabolic cost is present. By giving the answer to the first question, in fact the second question has also been answered.

In the first answer the title of the article by Pastorelli et al mentions 'sanitary challenge', which includes everything that affects the pigs – poor housing, overcrowding, management, stress, mycotoxins, parasites, bacterial infections, viral infections, LPS etc, etc. Of course there are differences between the factors mentioned, just as there are differences between the same facilities occupied by pigs of different genetics. There will always be an interaction between factors that the pigs are confronted with leading to the well-known variety of ADFI and ADG in a group of farms.

Subclinical infections will also lead to recording an ADG which is lower than could be expected based on the ADFI. This is the main reason why in-feed antibiotics, for the purpose of growth promoting, are so popular. But that is an unwanted practice. The way to reduce the metabolic cost of infection is by optimal management practices with focus on housing, caring and handling of pigs and a high level of biosecurity. Implementing this, even at a cost, will improve the farm economics.