

Editorial news and events

Book review

Empfehlungen zur Energie-und Nährstoffversorgung von Schweinen - New German recommendations for the energy and nutrient supply of pigs. Committee for Requirement Standards of the German Society of Nutrition Physiology. DLG-Verlags-GmbH Frankfurt, Germany (www.dlg-verlag.de) 2006. ISBN 3-7690-0683-6*978-3-7690-0683-4

The first edition of these recommendations for the energy and nutrient requirement of the pig was published nearly 20 years ago in 1987. Since then a tremendous increase in the knowledge concerning some basics of pig nutrition could be observed. For example, the concepts of feed evaluation and requirement estimation on the basis of gross amino acids, total and available phosphorus or metabolizable energy (ME) were repeatedly questioned and discussed at several scientific meetings.

Moreover, the genetic potential of the pigs to retain energy, protein and other nutrients has also been altered significantly during the past 20 years.

Therefore, the German Committee for Requirement Standards started to collect the basic data necessary for an updated re-evaluation of the energy and nutrient requirement of the pig. This process had already started some years ago and found its conclusion in the second edition of these recommendations, released in 2006.

Generally, the Committee continued to employ the basic concept of the factorial approach to derive the requirements for energy, amino acids and major minerals, which implied the description and modelling of the respective net retention in weight gain and secreted milk, maintenance requirement and utilization measures. Trace mineral and vitamin requirements were derived by using different deficiency indicating parameters, often in conjunction with dose-response studies.

In particular, the amino acid requirement was no longer derived on the basis of the gross amino acid level, but rather by using the precaecal digestible amino acid as a reference basis. The Committee had already published an opinion paper on methods and concepts for the determination of standardized precaecal digestibility of amino acids in feedstuffs for pigs in 2005 (GfE 2005a). This was a main precondition for including the concept of the precaecal digestible amino acid in the current recommendations. Based on the importance of lysine in the nutrition

of the pig, and on the availability of data concerning its metabolic utilization for retention on the one hand, and because of the lack of data concerning the utilization of the other amino acids on the other hand, the lysine requirement was derived factorially, whereas the requirement for the other amino acids was deduced based on their optimum ratios compared to lysine.

It might be surprising that the Committee did not follow some international trends to formulate the energy requirements of the pig on the basis of the net energy. Indeed, the introductory paragraph of the energy chapter is devoted to the substantiation for retaining the system of the metabolizable energy. For many reasons, there is no need to consider the differences in the energetic efficiency of protein in dependence on variable proportions of the use of protein for protein accretion or fat retention at the level of metabolizable energy. Moreover, simple balance studies provide fast results for digestibility values (GfE, 2005b), which in turn are highly correlated to the metabolizable energy, whereas technically expensive respiration studies for determination of the net energy are only carried out by some specialized laboratories today. The Committee takes the view that the German ME system provides a solid basis for a future European harmonization development based on metabolizable or net energy.

The concept “intestinally available phosphorus”, as recommended in the first edition, was now replaced by the “digestible phosphorus” based on the recommendations of the Committee already published in 1994 (GfE, 1994).

The current recommendations cover the requirements for all important pig categories, such as sows, suckling piglets, rearing piglets, growing fattening pigs, gilts and boars.

To open the horizon for future methods of estimation of the energy and amino acid requirement for pigs, two chapters were devoted to different model approaches which provide alternatives to the currently used factorial approach.

In addition, a new chapter on species-appropriate nutrition of the pig was introduced in the current edition to take factors into account which can not entirely reflected by conventional methods of requirement estimation. For example, this chapter contains some hints on feed intake regulation, on the effects of feed processing and on the water intake and quality.

It is worth noting that many of the basic data from the national and international literature which were used or the discussed in the current edition were presented in a compiled and reader-friendly form which enables the non-German reader to also get condensed information in the form of instructive tables.

The Recommendations were elaborated by the members of the standing Committee for Requirement Standards of the German Society of Nutrition Physiology and the leading German experts in pig nutrition.

Finally the forthcoming release of the English translation (www.dlg-verlag.de) of these recommendations should be kept in mind.

REFERENCES

- GfE, 1994. Ausschuss für Bedarfsnormen der Gesellschaft für Ernährungsphysiologie: Die Bestimmung des Verdaulichen Phosphors beim Schwein. Proc. Soc. Nutr. Physiol. 2, 113-119
- GfE, 2005a. Communications of the Committee for Requirement Standards: Standardised precaecal digestibility of amino acids in feedstuffs for pigs - methods and concepts. Proc. Soc. Nutr. Physiol. 14, 185-205
- GfE, 2005b. Communications of the Committee for Requirement Standards: Determination of digestibility as the basis for energy evaluation of feedstuffs for pigs. Proc. Soc. Nutr. Physiol. 14, 207-213

Sven Dänicke
Institute of Animal Nutrition,
Federal Agricultural Research Centre (FAL)
Braunschweig, Bundesallee 50,
D-38116 Braunschweig, Germany
e-mail address: sven.daenicke@fal.de