



Tropentag, October 7-9, 2008, Hohenheim

“Competition for Resources in a Changing World:
New Drive for Rural Development”

The Antinutritional Effect of Different Dietary Fibre in Pig Nutrition

BRITTA BLANK¹, EVA SCHLECHT², ANDREAS SUSENBETH¹

¹University of Kiel, Institute of Animal Nutrition and Physiology, Germany

²University of Kassel / University of Göttingen, Animal Husbandry in the Tropics and Subtropics, Germany

Abstract

Dietary fibre is discussed to act as an anti-nutritional factor by reducing apparent prececal protein and amino acid (AA) digestibility due to reduced absorption and/or increased endogenous secretion. In the present study the reduction of protein retention caused by fibre supplementation to a threonine (thr) limiting diet is taken as an estimate for increased endogenous thr losses.

Methods: Two experiments with twelve castrated male pigs each between 37 and 75 kg of body weight (BW) were conducted to measure the effect of 150 and 300 g per day fibre intake from wheat bran (WBF) (exp.1), and of 150 g per day fibre from rape seed (RSF), cassava leaves (CLF) and cassava roots (CRF) (exp. 2) on nitrogen (N) retention, respectively. Two balance periods were performed in exp. 1, and three periods in exp. 2 where animals were subjected to the dietary treatments according to a cross-over design. All animals received 1.35 kg per day of a basal diet (B) in thr was the first limiting AA. To determine the effect of thr on N retention the basal diet was reduced to 1.15 kg per day (diet B, 1.15) and supplemented with corn starch to reach equal energy intake and an unchanged AA pattern. The different fibre sources were received by a treatment of the respective feeds similar to that of NDF-determination.

Results and conclusion: N retention decreased by 2.4, 4.8, 2.4, 0.8, and 0.8 g for WBF (150), WBF (300), RSF, CLF and CRF, respectively. Because diets were thr limited the fibre associated thr losses can be estimated and amount for 3.2, 3.3, 3.4, 1.2 and 1.1 g per kg WBF (150), WBF (300), RSF, CLF and CRF, respectively. In many feedstuffs, fibre contributes to a significant proportion of the energy value, however their maintenance is enhanced and thr supply has to be increased to achieve the same level of growth.

Keywords: Dietary fibre, pigs, threonine, N retention, endogenous losses