GROWTH PERFORMANCE, NUTRIENT DIGESTIBILITY AND PROTEIN UTILIZATION IN GROWING PIGS FED NAKED OAT WITH β-GLUCANASE SUPPLEMENTATION AS A SUBSTITUTE FOR WHEAT

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Abstract. A 30-day growth experiment was performed on 44 growing pigs (initial BW 19.3 kg) to determine the effects of diets with a different level of naked oat, and β- glucanase supplementation of a diet with a high oat content, on growth performance. The pigs were fed individually the following diets: a control barley-wheat diet (group BW), a diet containing 23.5% naked oat (BOW), a diet containing 47% naked oat (OB), and a diet containing 47% oat supplemented with 1000 CU/kg β-glucanase (OBG). Nitrogen balance and nutrients digestibility of diets containing 97% wheat or naked oat, with or without 1000 CU/kg β-glucanase, were determined on 20 barrows (initial BW 40.9 kg).

Diet BOW containing 23.5% naked oat as a substitute for wheat had no effect on daily gains and feed efficiency, whereas diet OB with 47% oat improved daily gains from 668 to 713 g ($P<0.05$) and feed efficiency from 2.31 to 2.17 kg/kg ($P<0.05$), compared with the control barley-wheat diet. Nutrients digestibility was significantly higher ($P<0.01$) in the case of oat than wheat, except crude protein digestibility, where this difference was non-significant. Naked oat contained more digestible energy than wheat, i.e. 16.14 vs. 14.36 MJ/kg ($P<0.01$). It has also a higher biological value, compared with wheat (62.4% vs. 54.8%). In the growth experiment β-glucanase supplementation of a diet containing 47% naked oat had no effect on daily gains and feed efficiency, and in the balance experiment it allowed to increase oat gross energy digestibility ($P<0.05$).

Keywords: naked oat, wheat, β-glucanase, growth, digestibility, nitrogen balance, pigs.