



Influence of organically or conventionally produced wheat on health, performance and mycotoxin residues in tissues and bile of growing pigs

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Abstract

From 1999–2001 three different varieties of wheat [*Contur* (susceptible to *Fusarium*), *Batis* and *Petrus* (less susceptible to *Fusarium*)] were cultivated under organic and conventional conditions in order to determine mycotoxin burden. Soil quality, preceding crop and weather conditions were comparable in the different production systems. The wheat batches were analysed for moulds, and the contents of zearalenone (ZEN) and deoxynivalenol (DON). Feeding trials were carried out with growing pigs ($n=96$; average initial live weight 22.2 ± 1.5 kg [mean \pm SD]) to examine a possible influence on the animal performance and on mycotoxin residues. The data recorded were clinical conditions, performance, biochemical and hematological data. Residues of ZEN, α - and β -zearalenol (ZEL) and of DON were determined in bile, liver and muscle after slaughtering.

Conventionally cultivated wheat was more frequently contaminated with *Fusarium* and contained more frequently ZEN and DON in higher concentrations than the organically produced wheat. Hematological and biochemical parameters of pigs fed with organically cultivated diets were not different from those of conventionally fed pigs. Pigs fed with organically produced wheat showed a slightly higher daily weight gain, but a lower carcass yield than the conventionally fed animals. The highest residues of DON and total-ZEN (ZEN + α -ZEL + β -ZEL) were found in bile. Bile samples of organically fed pigs contained lower concentrations of total-ZEN than those of conventionally fed pigs. Altogether, these data suggest that wheat from an organic farming does not have higher mycotoxin-contamination than wheat from the conventional farming system.

Keywords: [Organic farming](#), [mycotoxins](#), [deoxynivalenol](#), [zearalenone](#), [pig](#)