

# Effect of Dietary Yeast Supplementation on Microflora in the Gastrointestinal Tracts of Horses

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Previous research in horses indicates that live yeast can influence microbial populations in the hindgut. In this study, sixteen Quarter Horse mares ( $10.6 \pm 5.0$  yr) were used to evaluate the effect of dietary yeast supplementation on microflora in the gastrointestinal tract. Mares were blocked by reproductive status and diet and randomly assigned to one of two treatment groups: Yeast or Control. Open mares received 0.5% BW of a 12% CP pelleted concentrate while pregnant mares received 0.5% BW of a 16% CP pelleted concentrate. All horses also received mixed grass hay and water *ad libitum*. Horses in the yeast treatment group were fed a target dose of 1 g/45.4 kg of BW per day of a live culture of *Saccharomyces cerevisiae* throughout the study. Fecal samples were collected weekly to evaluate changes in the gastrointestinal microflora. Microbial diversity was investigated using PCR with universal primers specific to 16S rRNA gene sequences and subsequent denaturing gradient gel electrophoresis (DGGE) analyses. Images were captured and analyzed with Bionumerics software to compare microbial diversity. PCR using universal primers was successful in amplifying the 200 bp region of interest in all samples. DGGE analysis of fecal samples using universal primers revealed no differences in the microbial profiles of the mares due to reproductive status, diet or yeast supplementation in this study. DGGE analysis with *Saccharomyces cerevisiae* specific primers is needed to further evaluate the influence of the yeast on microbial diversity within the gastrointestinal tract of horses.