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Effects of a *Lactobacillus buchneri* inoculant on the fermentation profile, microbial counts, and aerobic stability of corn silage at different dry matter contents

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Abstract

With an increasing human population access to ruminant products is an important factor in global food supply, especially if ruminants use crops, not available for human nutrition. While ruminants contribute to climate change, climate change could also affect ruminant production. Growing forages under elevated temperature, drought or flood can induce stress responses and that could affect not just crop production but also feed availability from natural grasslands, and thereby nutritive value to ruminants. In addition, dairy cows should feed with high energy, nutrient rich roughage, because a high yielding caw is a climate saving cow by a lower CO_2-equivalent output per milk and meat yield. The maize crop is an important crop because of combining high yields, high feed quality and a quite high water use efficacy. But due to the competition of maize in case of feed/food a strong focus on the reduction losses in silage production and during feed-out should be given.

The hypothesis of this study was that *Lactobacillus buchneri* based silage inoculants improve aerobic stability during feed-out, by modification of the fermentation profile during fermentation of a whole-plant corn crop.

The maize crop was harvested at two different harvest stages (29 % and 38 % DM content). At both DM levels the inoculated silages had been characterised by an elevated acetic acid content in the silage, slightly higher fermentation losses and a lower yeast count. As a result of the altered fermentation the aerobic stability was improved by 2.2 times. Caused by that the losses during aerobic exposure could be reduced from 7.5 to 2.8 %, which saves a lot of CO_2 exhaustion.

Keywords: Aerobic stability, maize silage

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