Impact of ensiling and storage temperature on the aerobic stability of maize silage with or without additives

Kristin Rang, Yurui Sun, Hauke F. Deeken, Gerd-Christian Maack, Wolfgang Büscher
Institute of Agricultural Engineering, University of Bonn

Question

- Differences in temperature have been shown to affect the fermentation in stylo and alfalfa silage (Liu et al., 2012, Zhang et al., 2018)

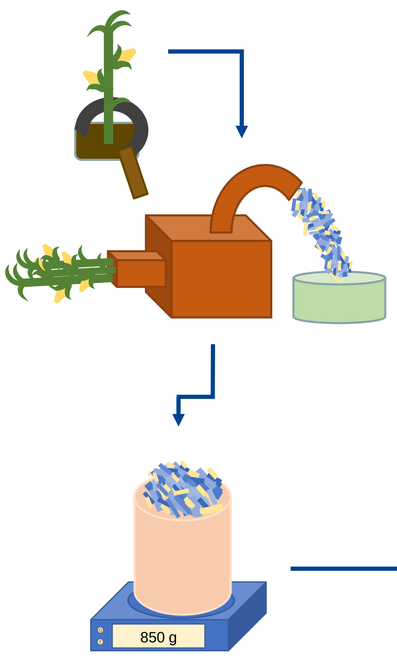
Does the storage temperature during fermentation affect the aerobic stability of maize silage?

Answer

- The material ensiled with the additive indicates a later increase in microbial activity when ensiled at 23°C than when ensiled at 33°C

Yes, but the use of an additive has a more profound effect on aerobic stability

Material & Methods

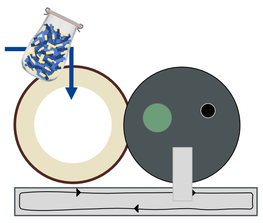


CON23
- Maize silage stored at 23°C

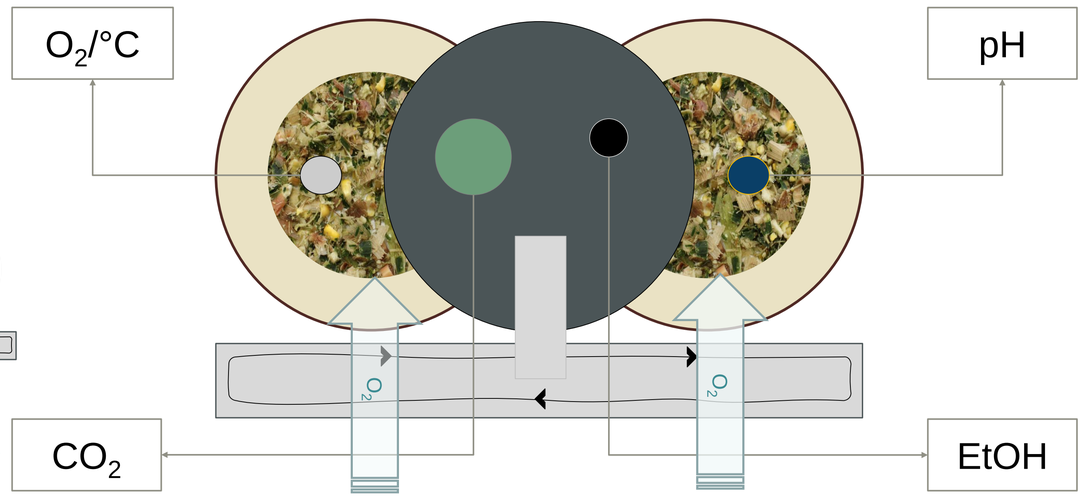
CON33
- Maize silage stored at 33°C

BIO23
- Maize silage treated with additive stored at 23°C

BIO33
- Maize silage treated with additive stored at 33°C

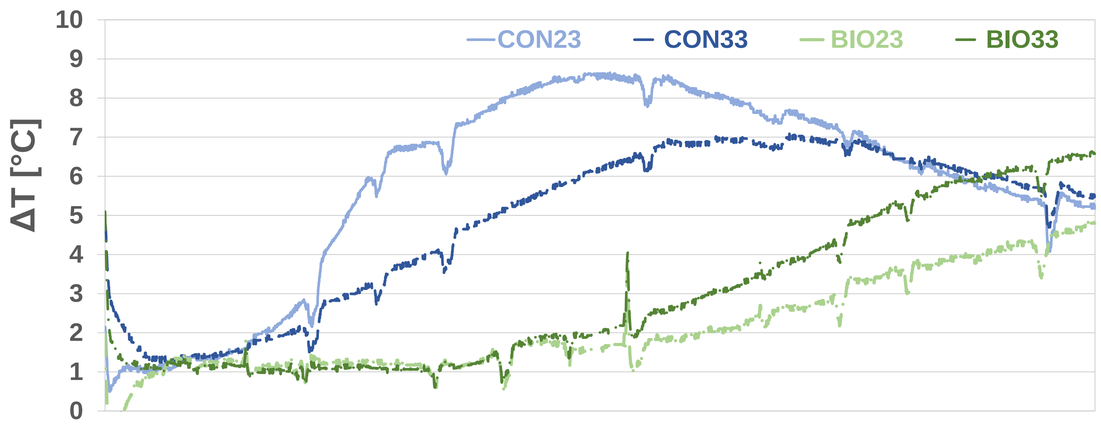


Testing apparatus

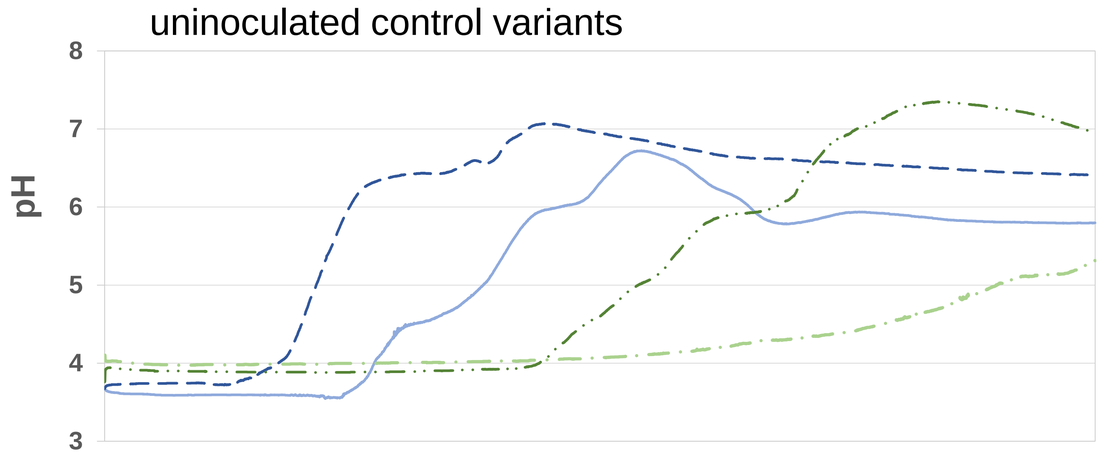


- Aerobic stability test in the 9-sample-online-measuring-system: live measurement of pH, temperature, O_2 content 15 cm into the silage

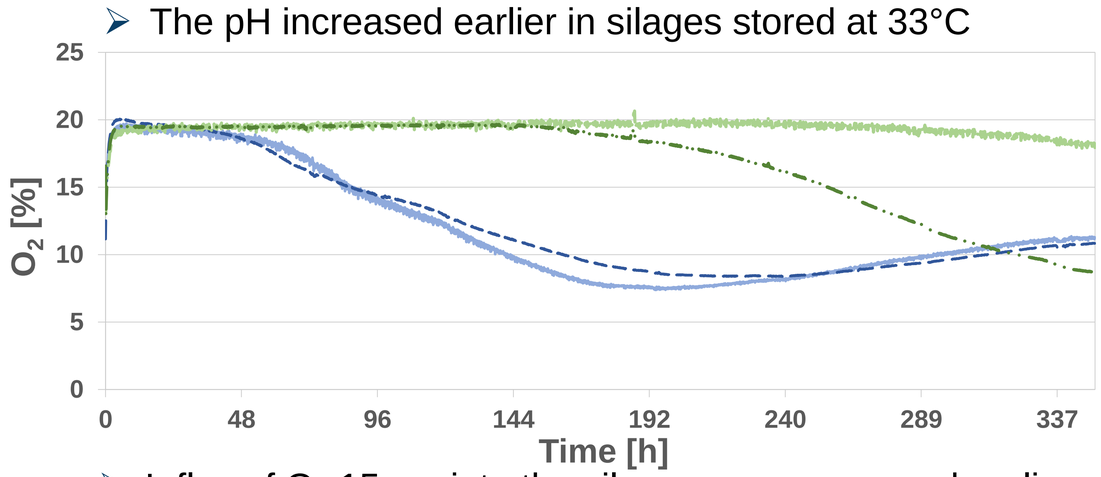
Results



- On average temperature increased earlier in the uninoculated control variants



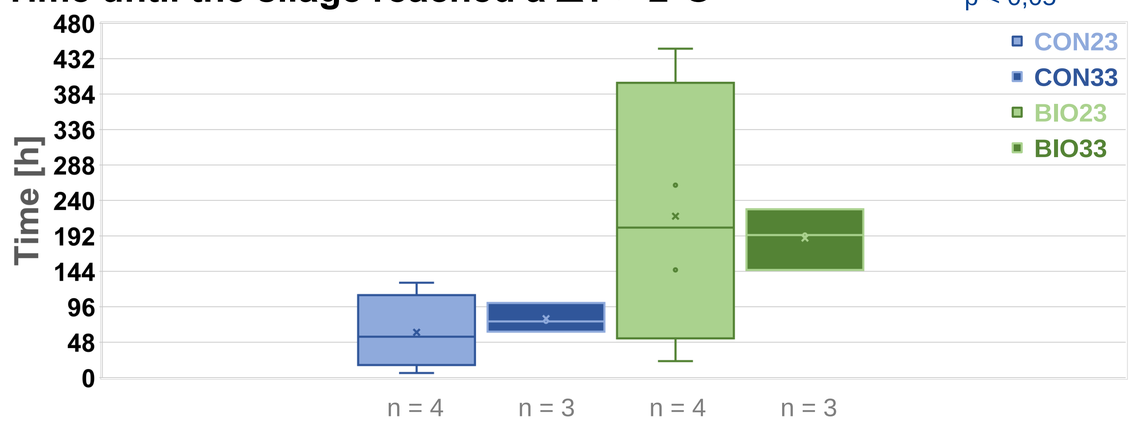
- The pH increased earlier in silages stored at 33°C



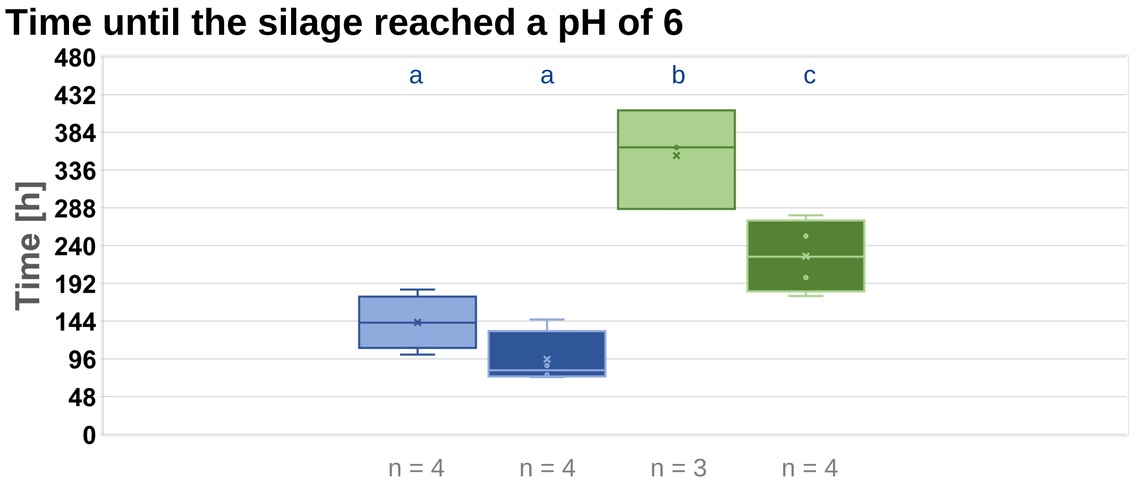
- Influx of O_2 15 cm into the silage was suppressed earlier in silages without inoculation

Time until the silage reached a ΔT > 2°C

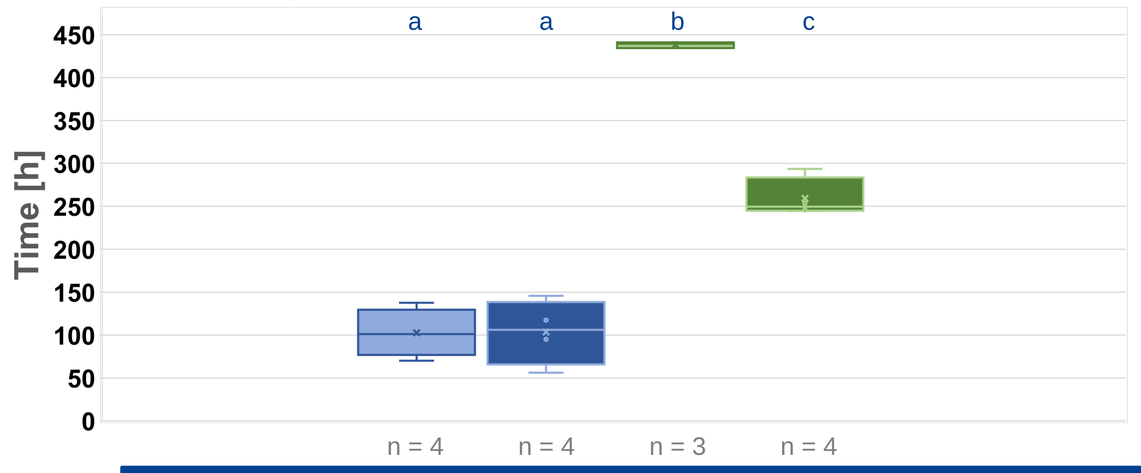
Significance level
p < 0,05



Time until the silage reached a pH of 6



Time until the O_2 content in the silage drops below 15%



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Mail: Kristin.Rang@uni-bonn.de
Phone: +49 228 73-68743
www.landtechnik.uni-bonn.de