

IMPACT OF SELECTED LACTIC ACID BACTERIAL STRAINS ON GRASS SILAGE FERMENTATION

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Objective

The strains being investigated—*Enterococcus faecium* DSM 16567, *Lactococcus lactis* DSM 34583, and *Lentilactobacillus buchneri* DSM 34586—are compared to a control group of non-inoculated silage. This approach allows to assess the potential benefits of these specific LAB strains in improving the quality of silage, particularly by examining their impact on fermentation characteristics such as pH reduction, organic acid profiles, and preservation of nutrients.

Materials and methods

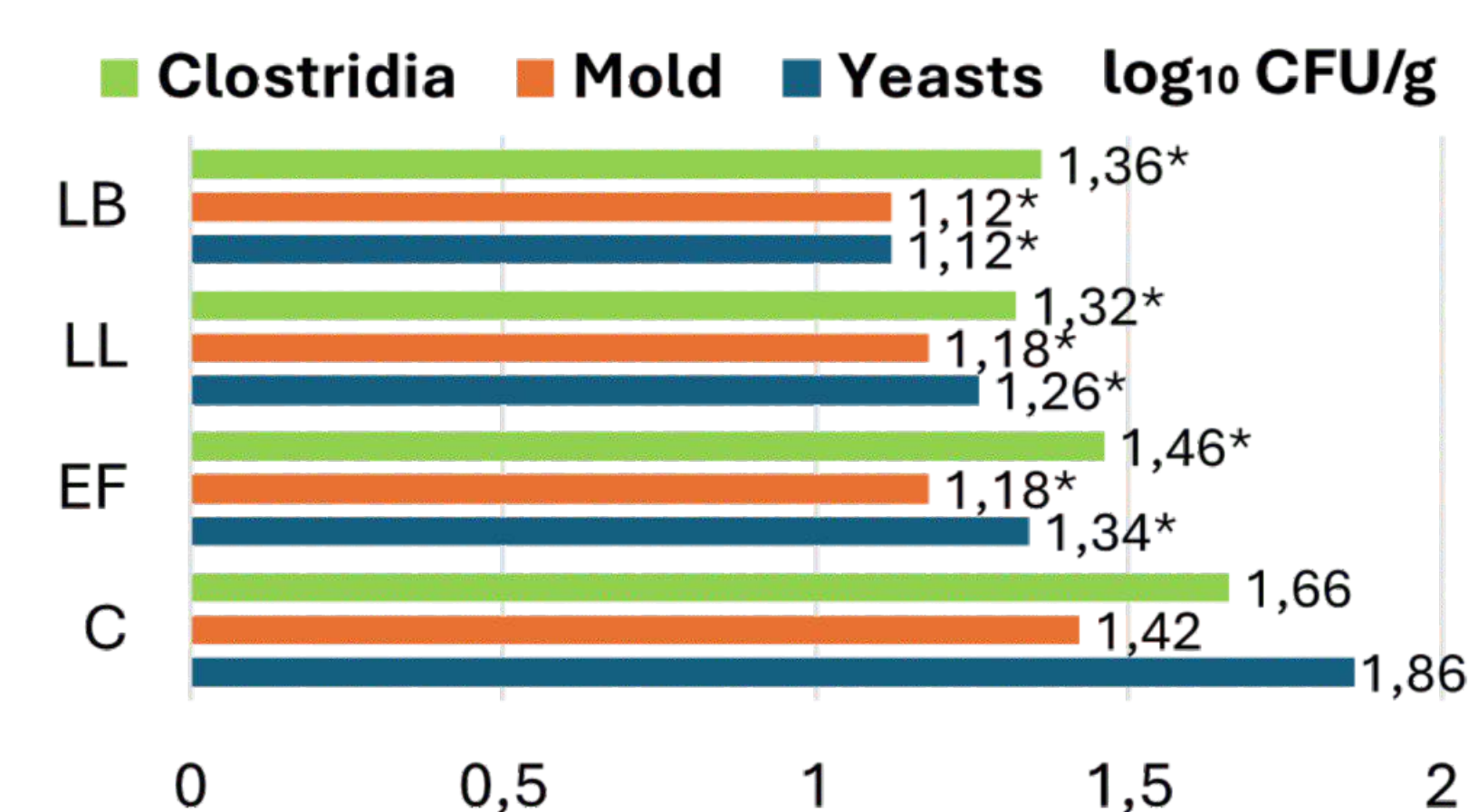
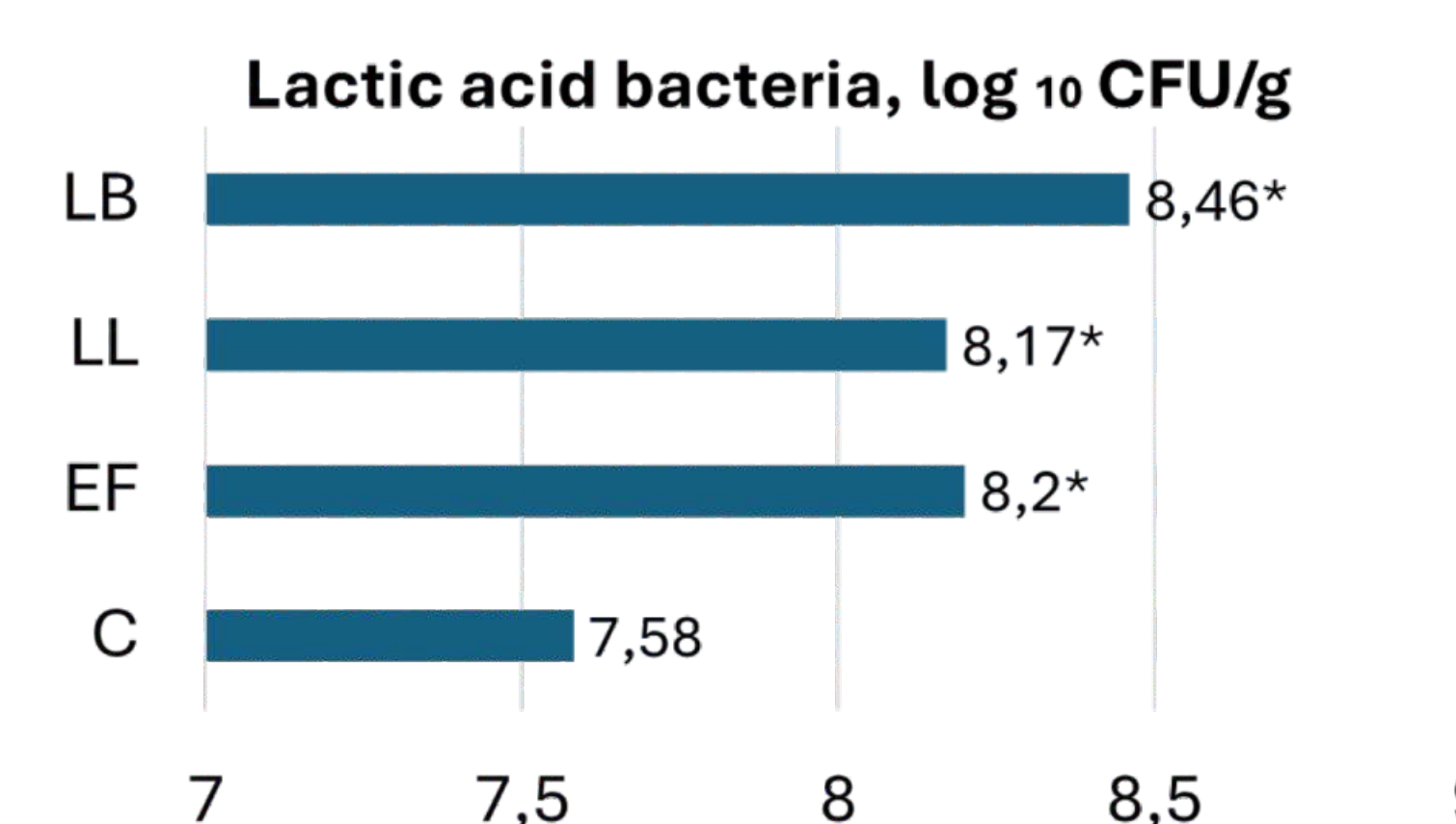
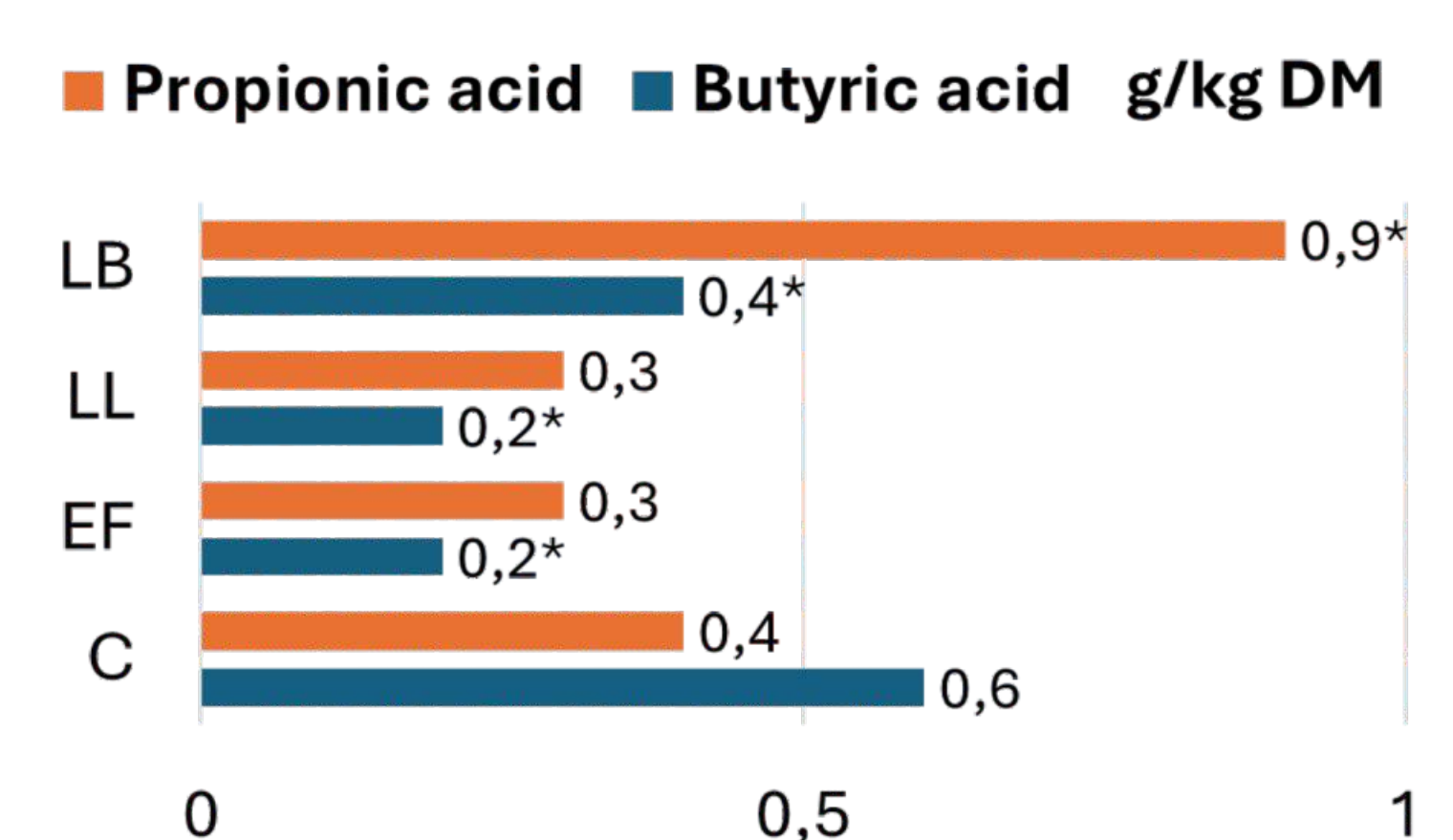
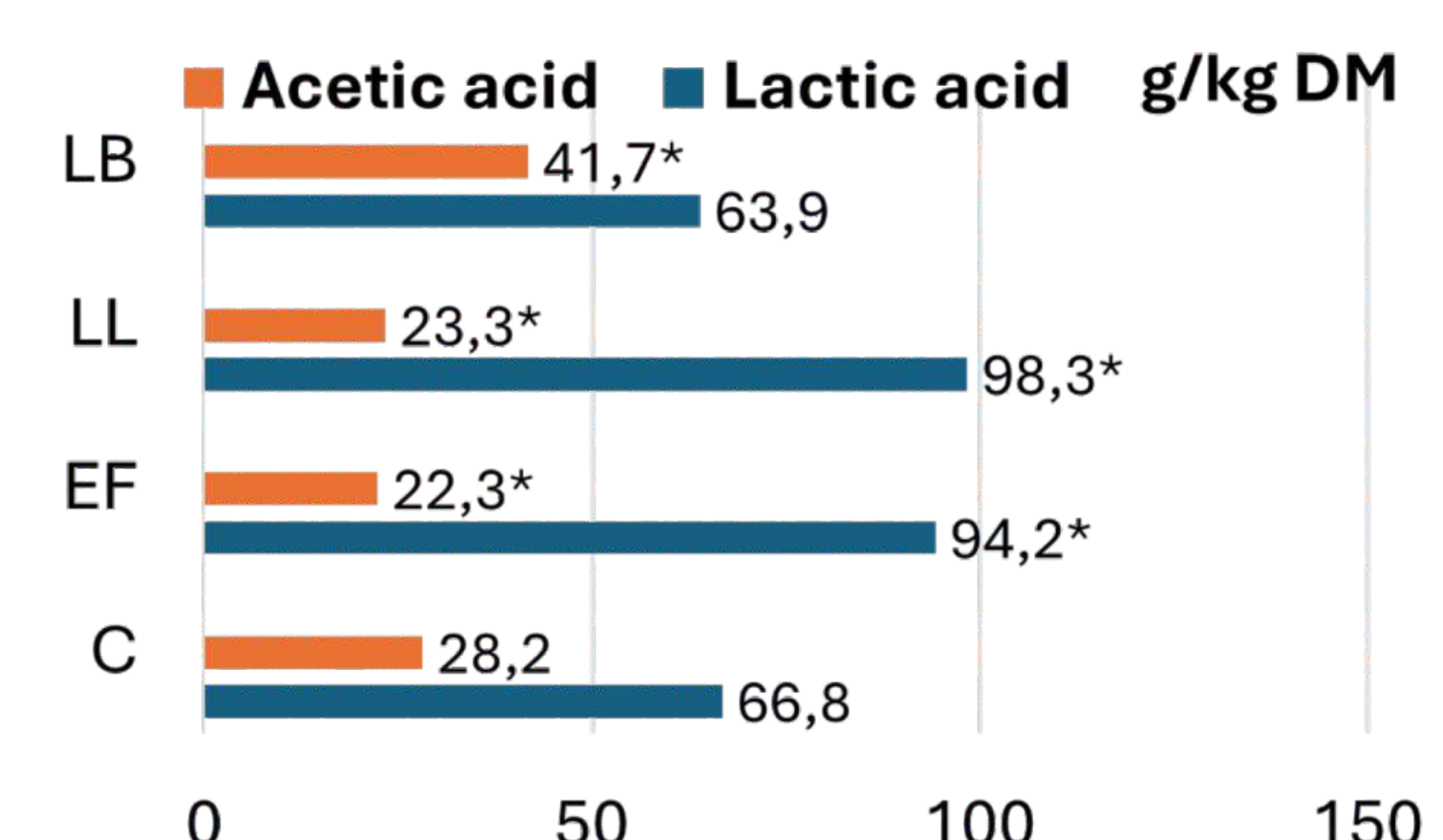
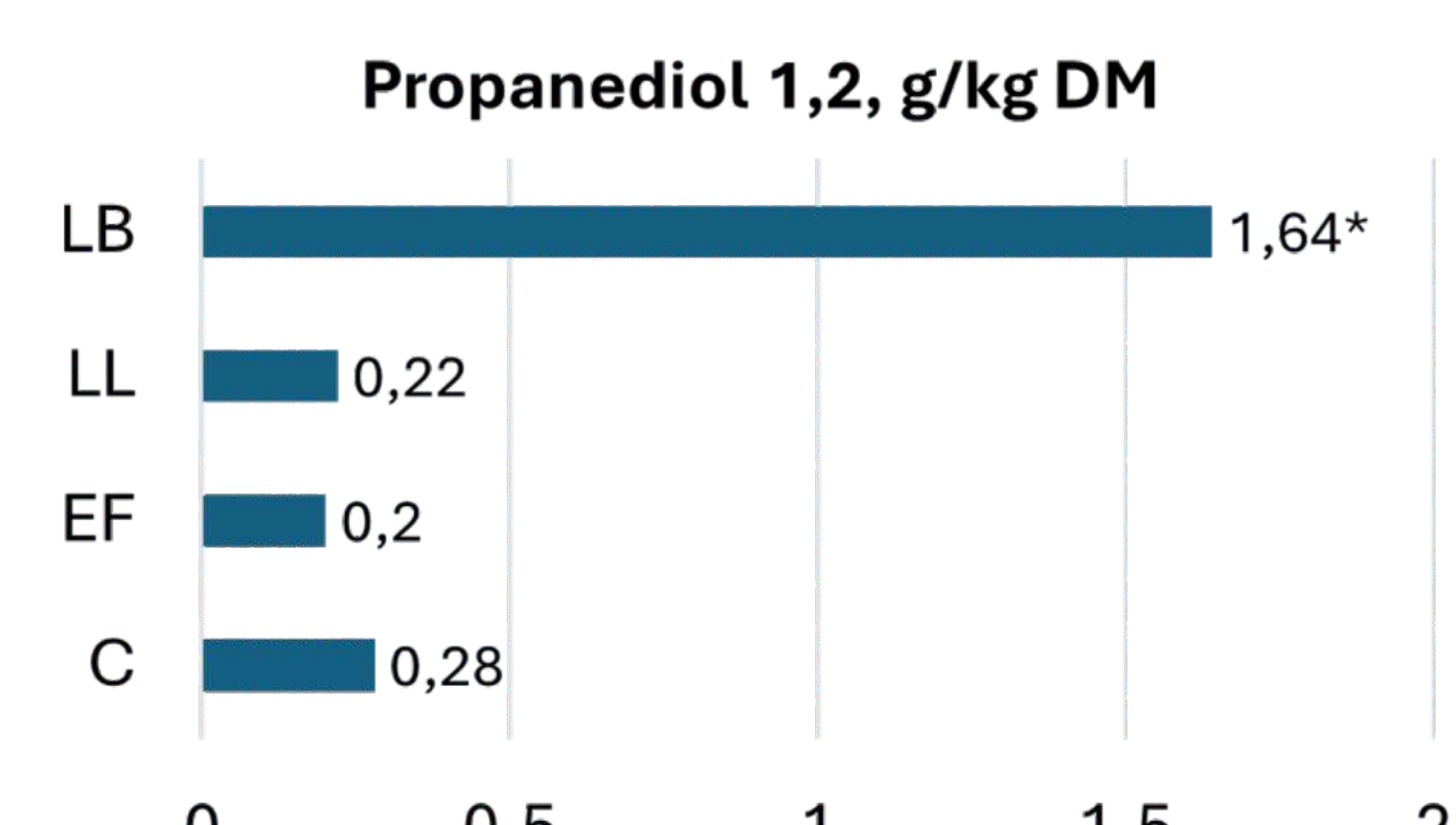
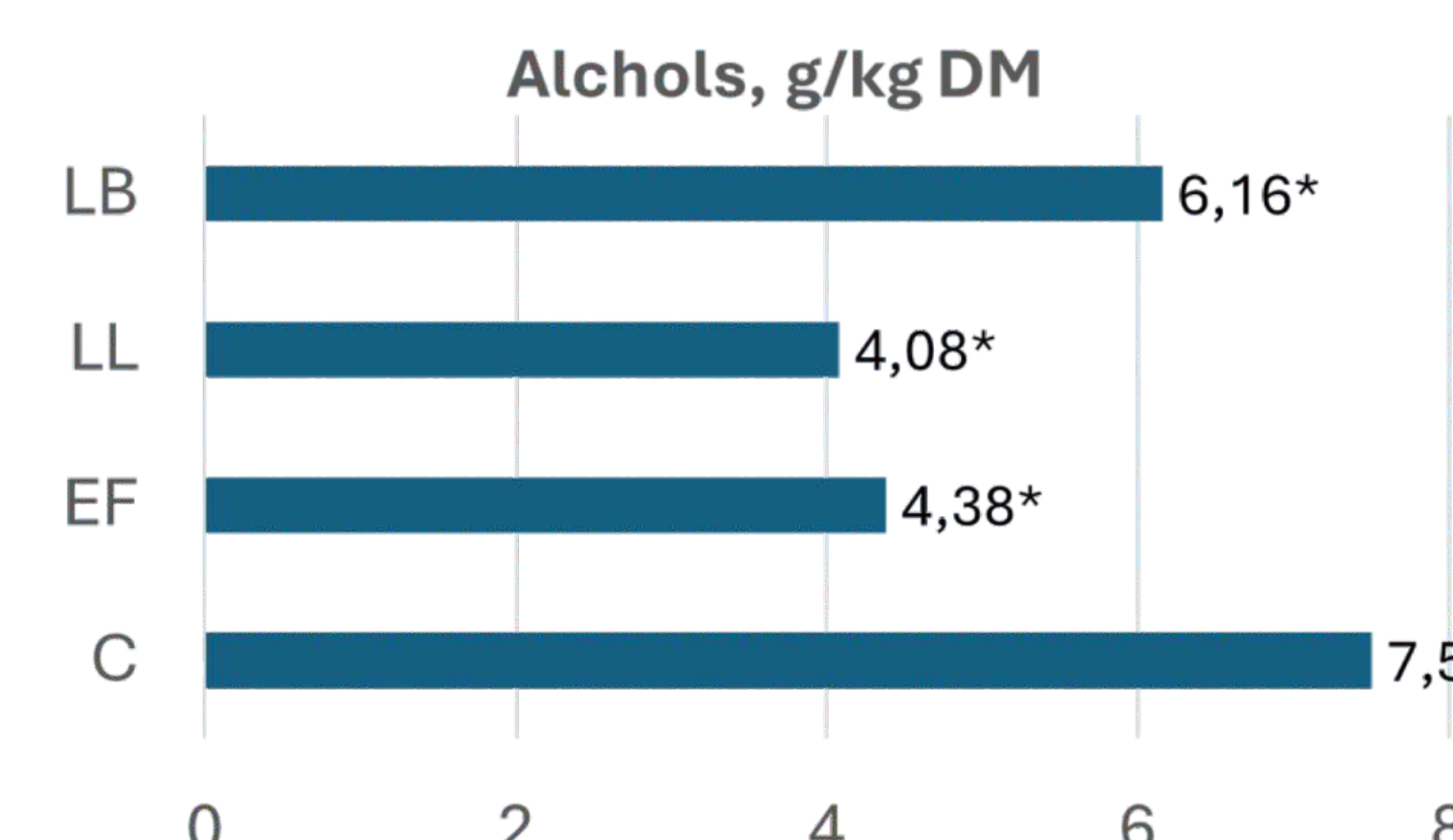
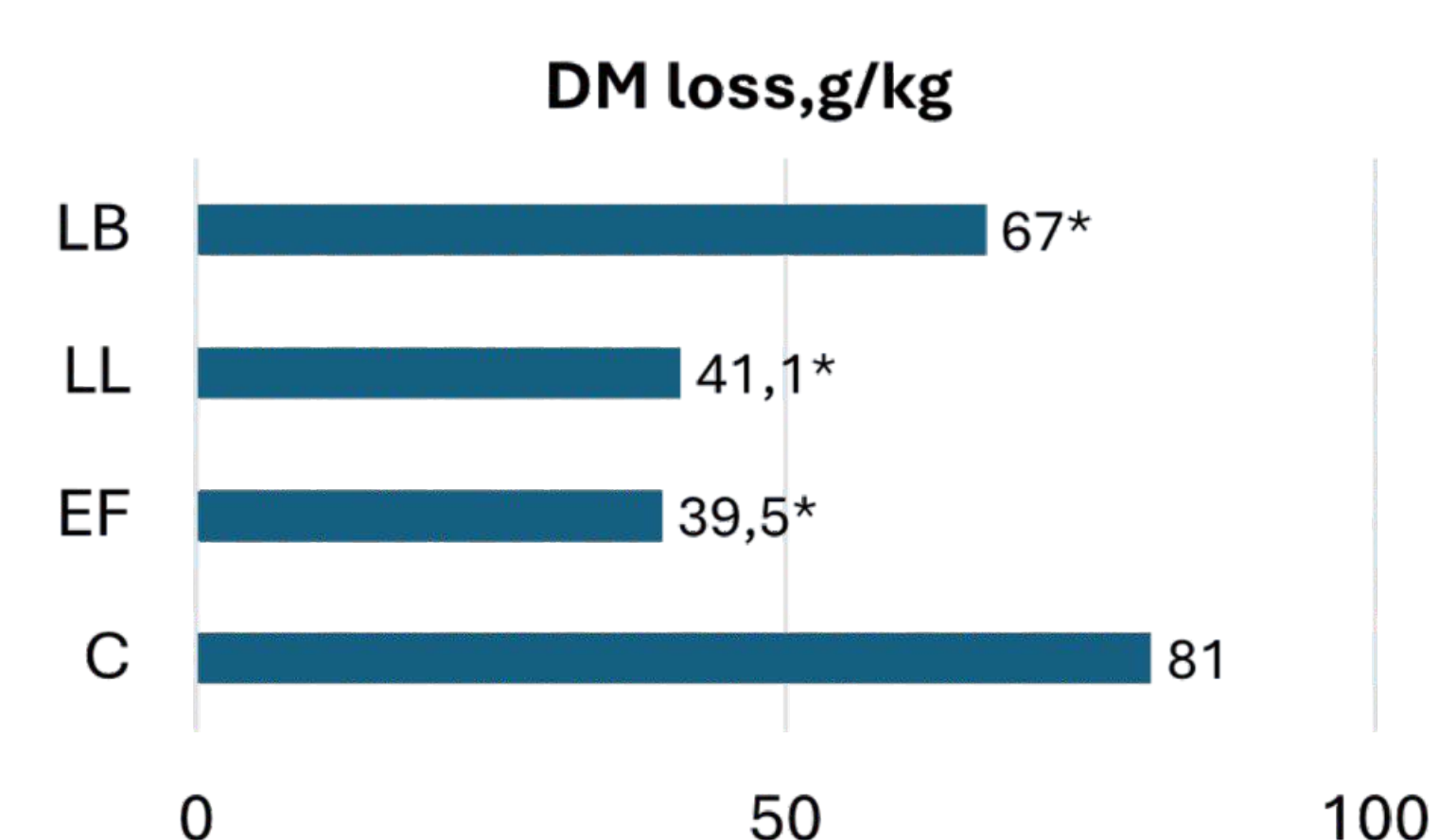
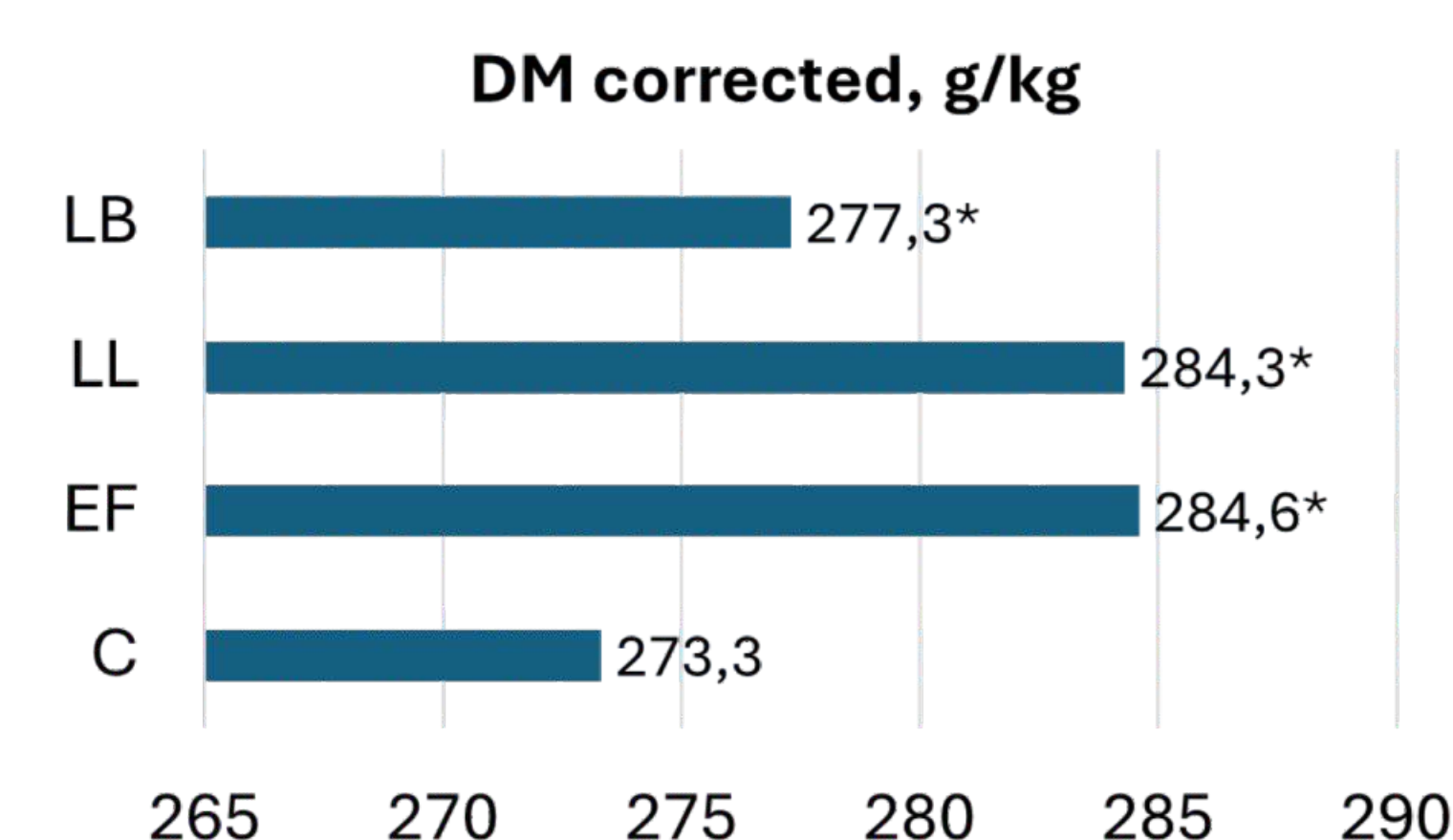
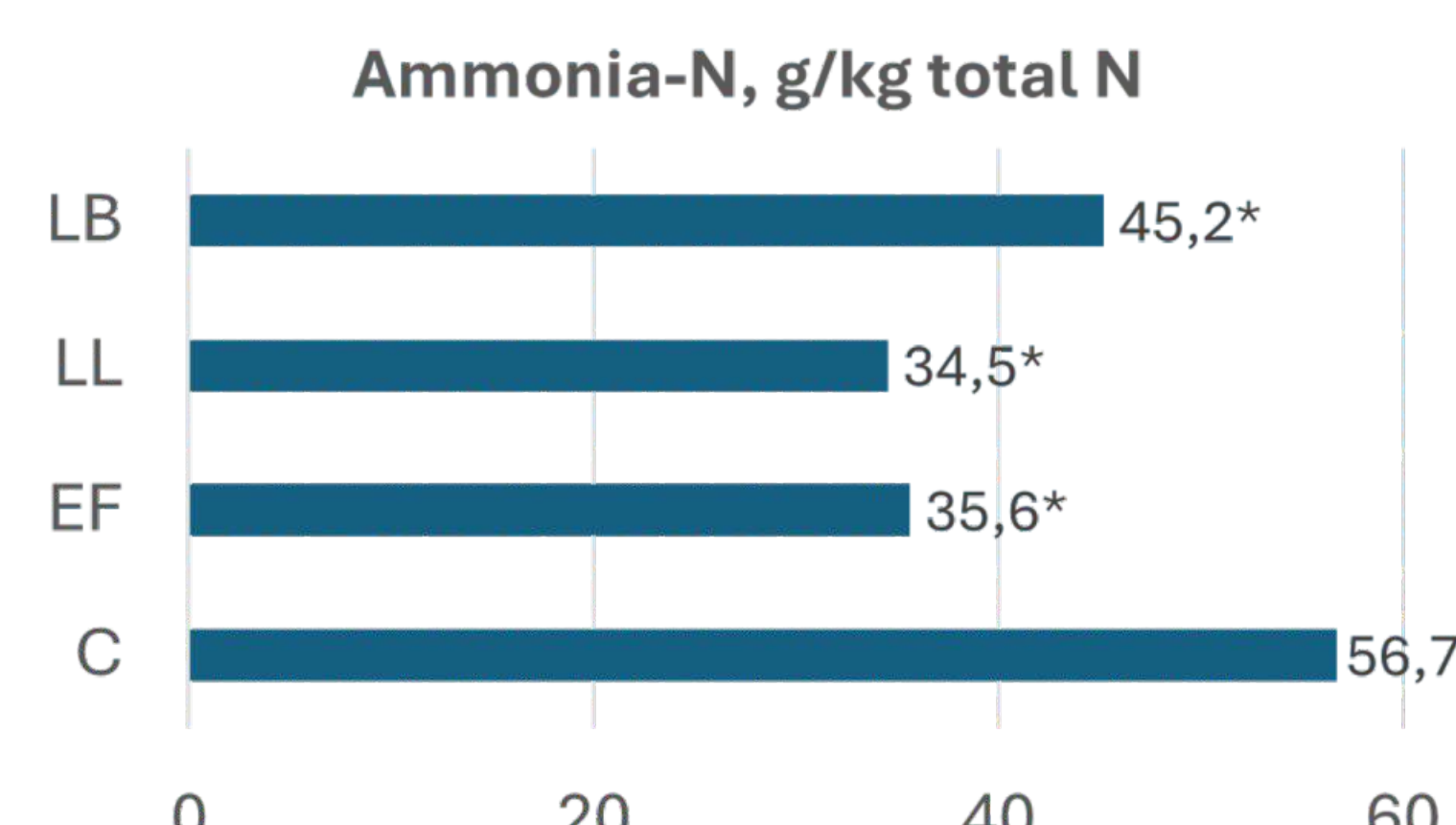
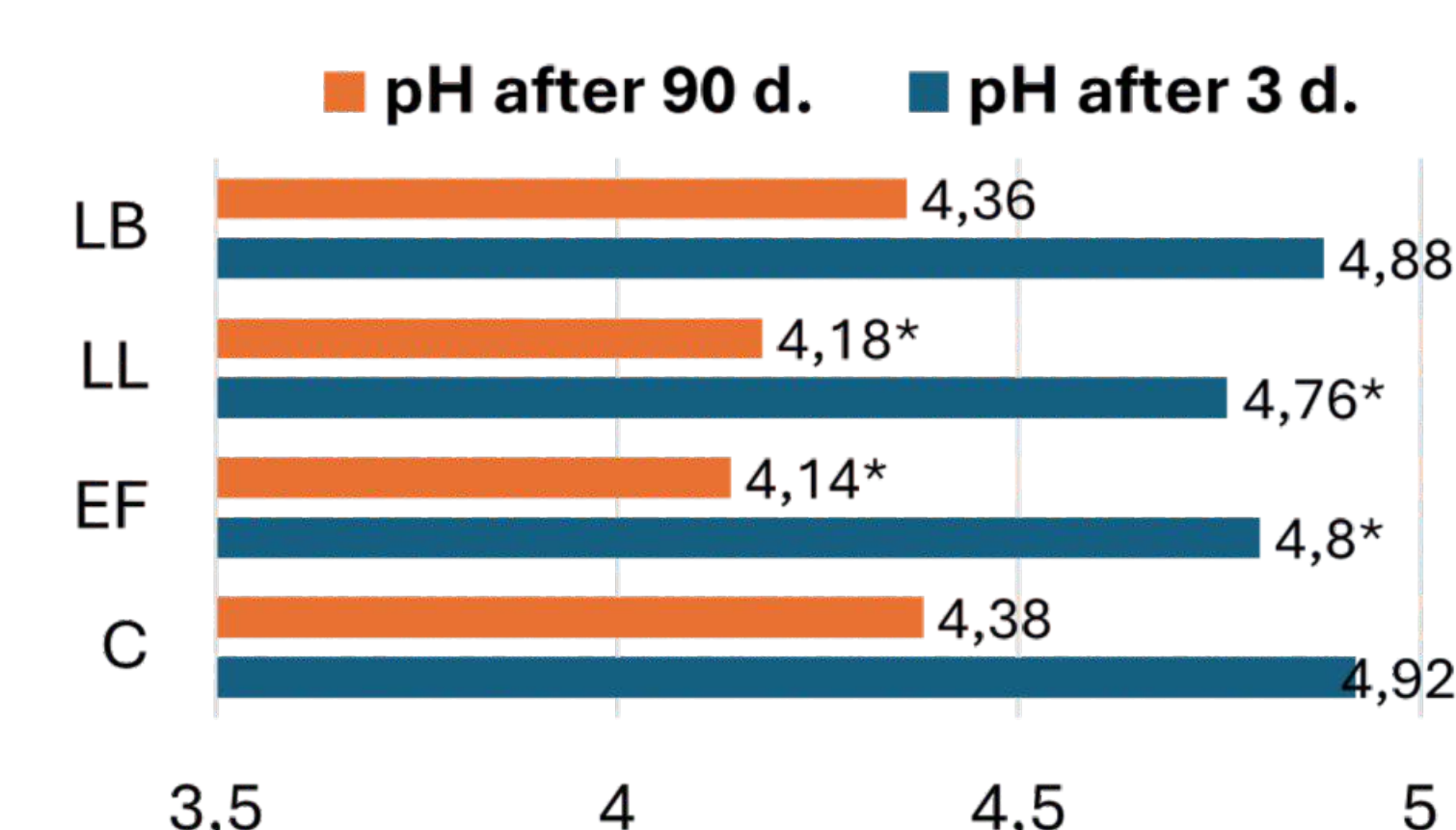
70% perennial ryegrass (*Lolium perenne* L.) and 30% timothy (*Phleum pratense* L.) – dry matter 294 g/kg chopped to about 2.5 cm length.

A randomized complete block design, with five 3 litre micro-silos replicates per additive combination:

1. C – No additive;
2. EF – *Enterococcus faecium* (DSM 16567);
3. LL – *Lactococcus lactis* (DSM 34583);
4. LB – *Lentilactobacillus buchneri* (DSM 34586).

After 90 d of storage at 20° C the following was analysed:

- a) silages fermentation parameters,
- b) number of clostridia spores, lactic acid bacteria, yeasts and moulds.



Conclusions

The tested LAB strains effectively reduced the formation of undesirable fermentation products such as ammonia-N, alcohols, and butyric acid, while also suppressing yeast growth. Although the *Lentilactobacillus buchneri* DSM 34586 strain was less effective in reducing pH and DM loss, it produced higher concentrations of acetic acid and 1,2-propanediol.

