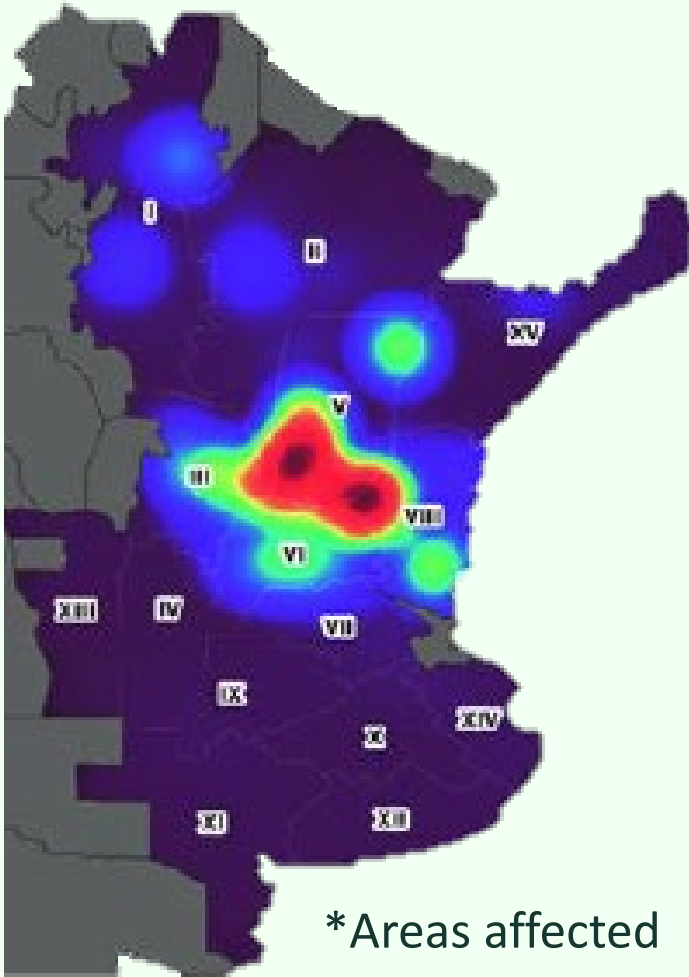


Reducing corn silage losses and improving aerobic stability under adverse conditions: evidence from a farm-scale trial in Argentina

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Spiroplasma in Argentina (23/24 Silage season*)



*Areas affected

A virus is transmitted by an insect vector, the "leafhopper" *Dalbulus maidis*

Dalbulus maidis reproduces inside the plant by blocking the vascular bundles and preventing the transport of photoassimilates to the points of active growth.

This causes physiological and nutritional alterations.

Effect on corn

- Abrupt arrest of development due to floral abortion
- Rapid loss of structural moisture
- Very short chopping window (3-4 days)
- Increased risk of ensiling with high DM (>40%)
- Increase in microorganism contamination (e.g. yeast and molds)



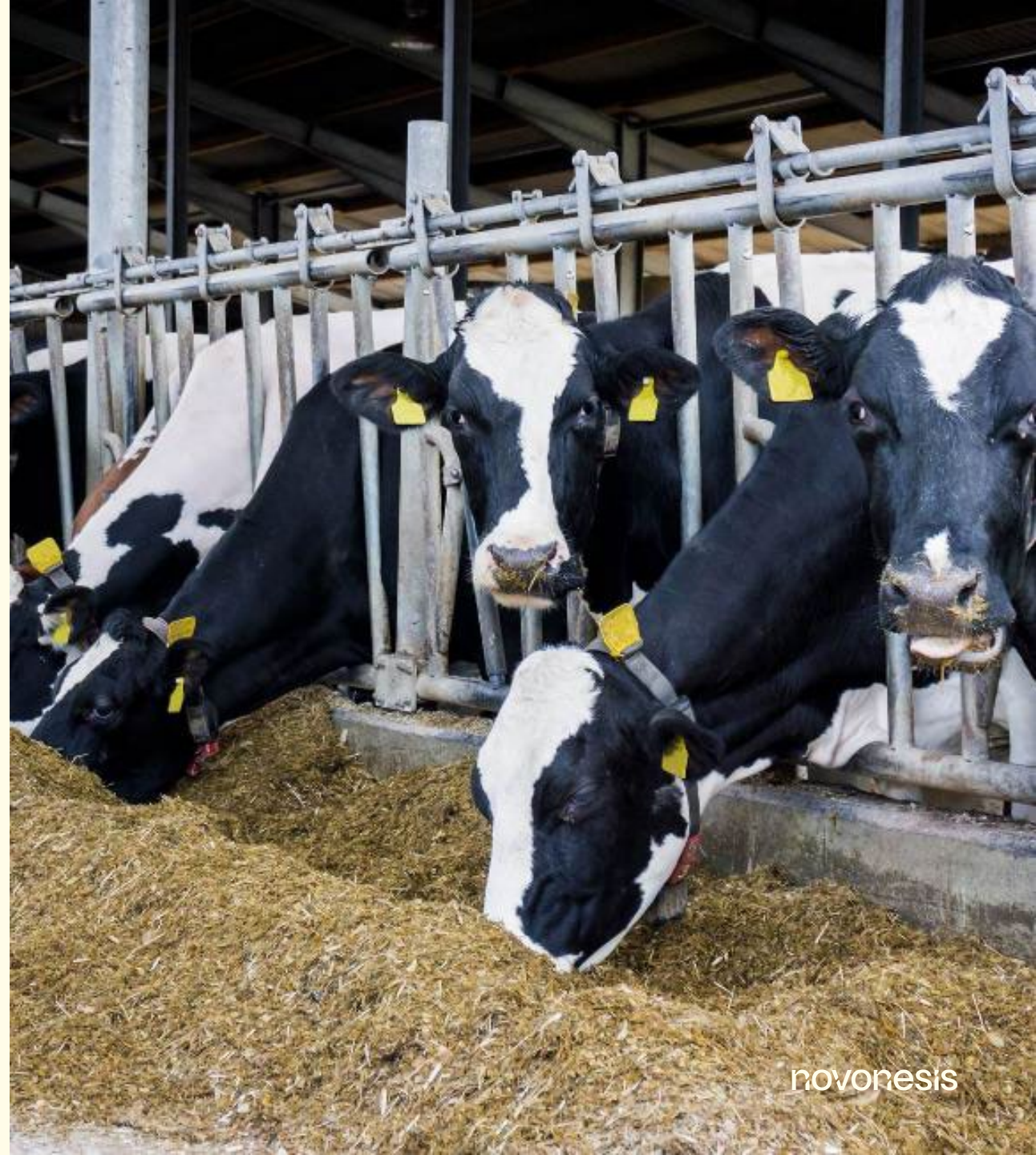
Why is this important?

- Corn silage is essential in Argentina's dairy systems
- Losses during storage and feedout reduce profitability
- Adverse conditions (e.g. *Spiroplasma*) challenge fermentation and stability



Objective:

To evaluate two microbial inoculants in corn silage affected by *Spiroplasma*, focusing on DM losses and aerobic stability.





Materials and methods



Location:

Grupo Chiavassa, Carlos Pellegrini, Argentina



Harvest: April 26–28, 2024



Crop: Corn at $52 \pm 2\%$ DM, Spiroplasma-affected

Treatments in 15 silobags (~290 tons each):

- CON: No inoculant
- ST: Multi-strain blend + enzymes at 160,000 CFU/g of forage
- FC: SiloSolve®FC (*Lactococcus lactis* DSM11037 + *Lentilactobacillus buchneri* DSM22501) at 150,000 CFU/g of forage



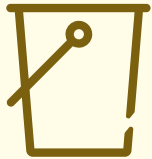
The inoculation of both treatments was carried out during chopping using the installed applicator

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Material & Methods



Silage sampled at 30 and 60 days of fermentation



Aerobic stability test: 10 days in open buckets (n = 5 per treatment)



Temperature monitored via dataloggers



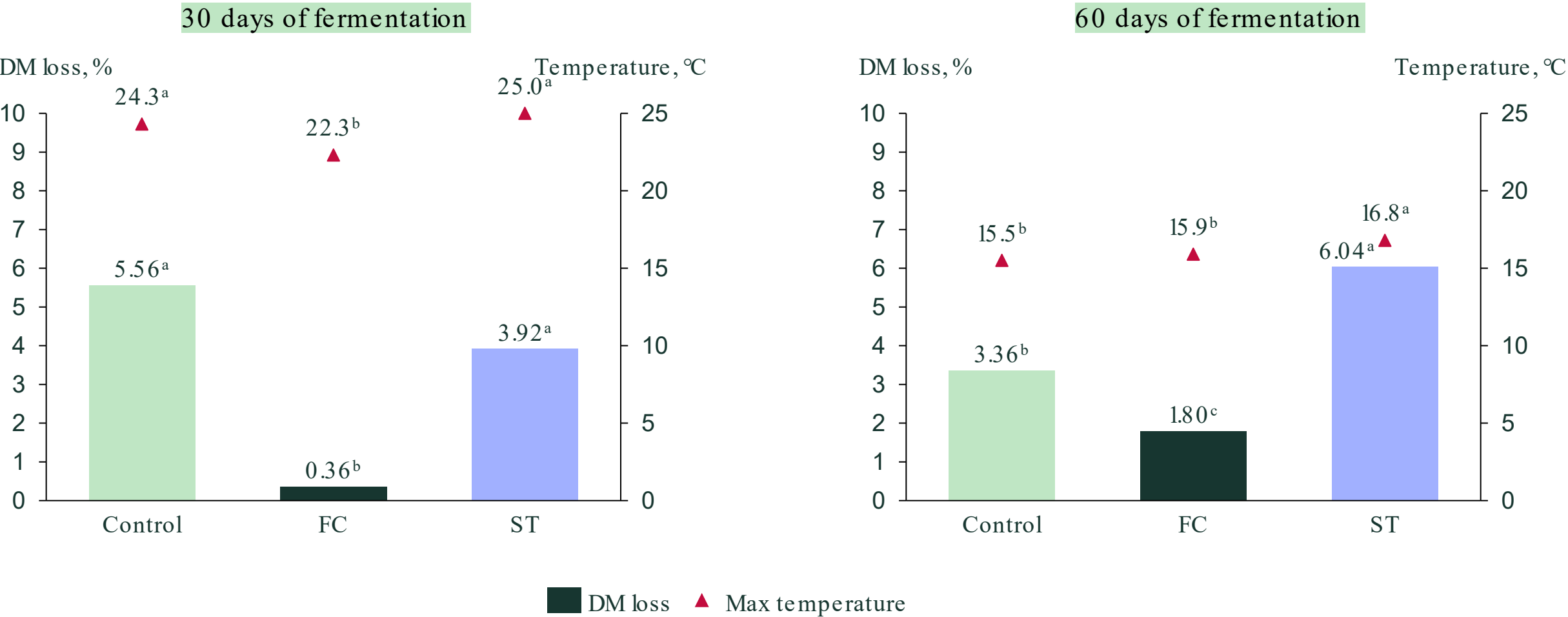
DM loss determined during aerobic stability test



Statistical analysis: PROC MIXED (SAS); significance at $P \leq 0.05$

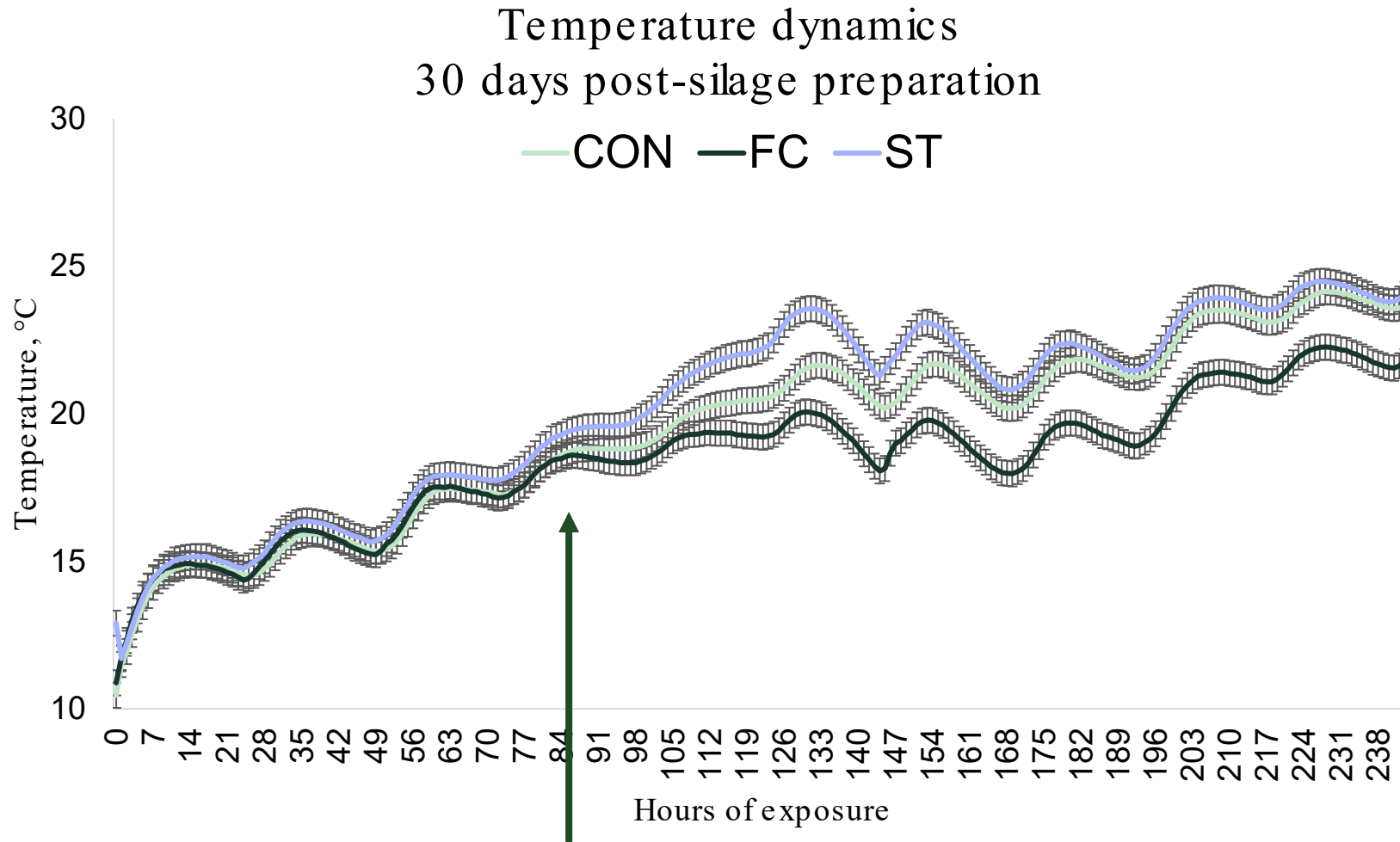


Results: Dry matter loss (%) and maximum temperature (°C) of the silages after 10 days of aerobic exposure following 30 and 60 days of anaerobic fermentation



Results

Temperature dynamics during aerobic exposure of silages after 30 days of fermentation

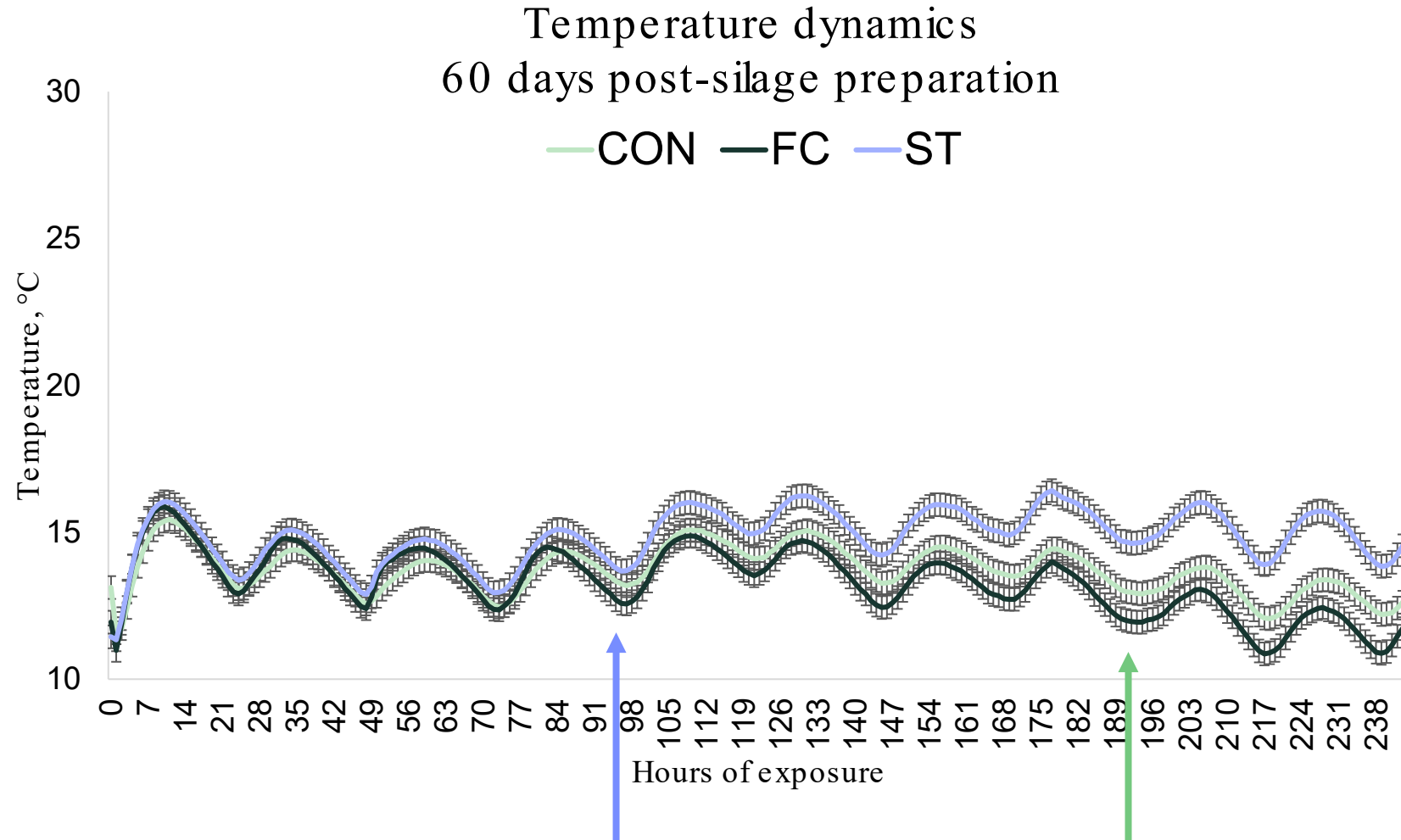


At 30 days of fermentation revealed that, from 84 hours onwards, the CON and ST treatments exhibited significantly ($P < 0.05$) higher temperatures.

The FC treatment maintained lower temperatures compared to the two other treatments throughout the 10-day period

Results

Temperature dynamics during aerobic exposure of silages after 60 days of fermentation



At 60 days - temperature differentiation began at 96 hours, with the ST treatment showing a significant increase in temperature.

Although the CON treatment remained slightly higher than the FC treatment throughout the exposure period, significant differences between the two were observed from 189 hours onward, with FC consistently showing the lowest values.

Conclusions

Our results demonstrated that inoculant composition affects DM losses and temperature dynamics during aerobic exposure of whole-plant corn silage affected by Spiroplasma

The FC inoculant maintained lower temperatures and reduced DM losses, highlighting its effectiveness in preserving silage quality under adverse conditions.

Acknowledgements

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Thank you