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Effects of *Pichia norvegensis* and air exposure on the nutritive value of corn silages for dairy cows

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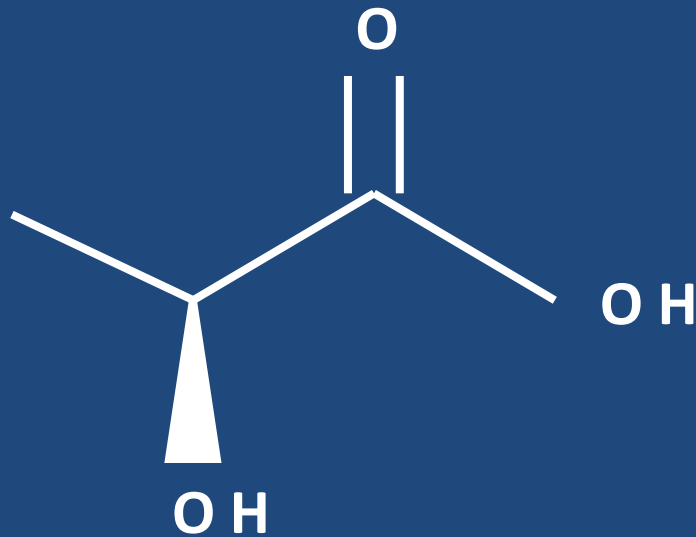
Piracicaba - São Paulo - Brazil

2015

Corn silages are prone to deterioration when exposed to air



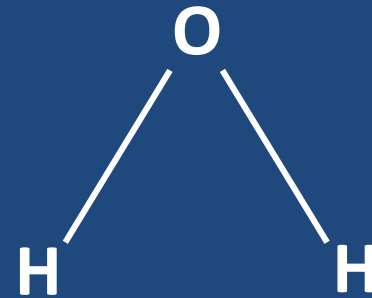
Lactate-assimilating yeast species
initiate the aerobic deterioration



Lactic acid



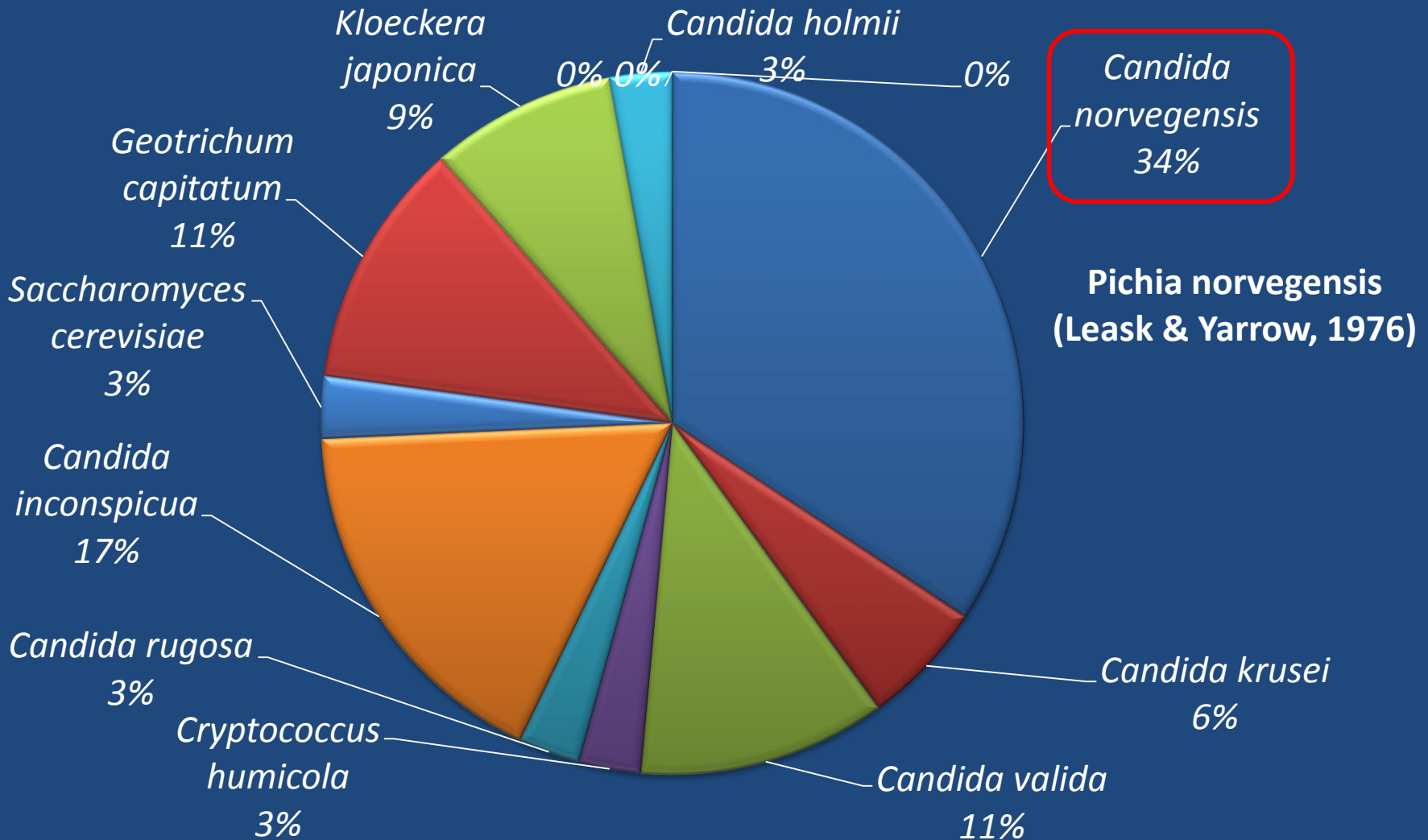
Carbon dioxide



Water

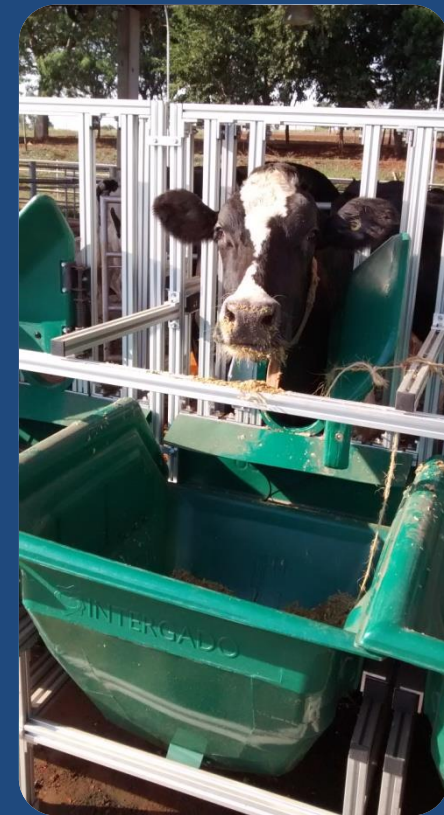
Heat

Yeast identification



Feeding aerobically unstable silages may decrease:

- Feed intake (Whitlock et al., 2000)
- Milk yield (Hoffman and Ocker, 1997)
- Milk fat content (field observation)



Objective

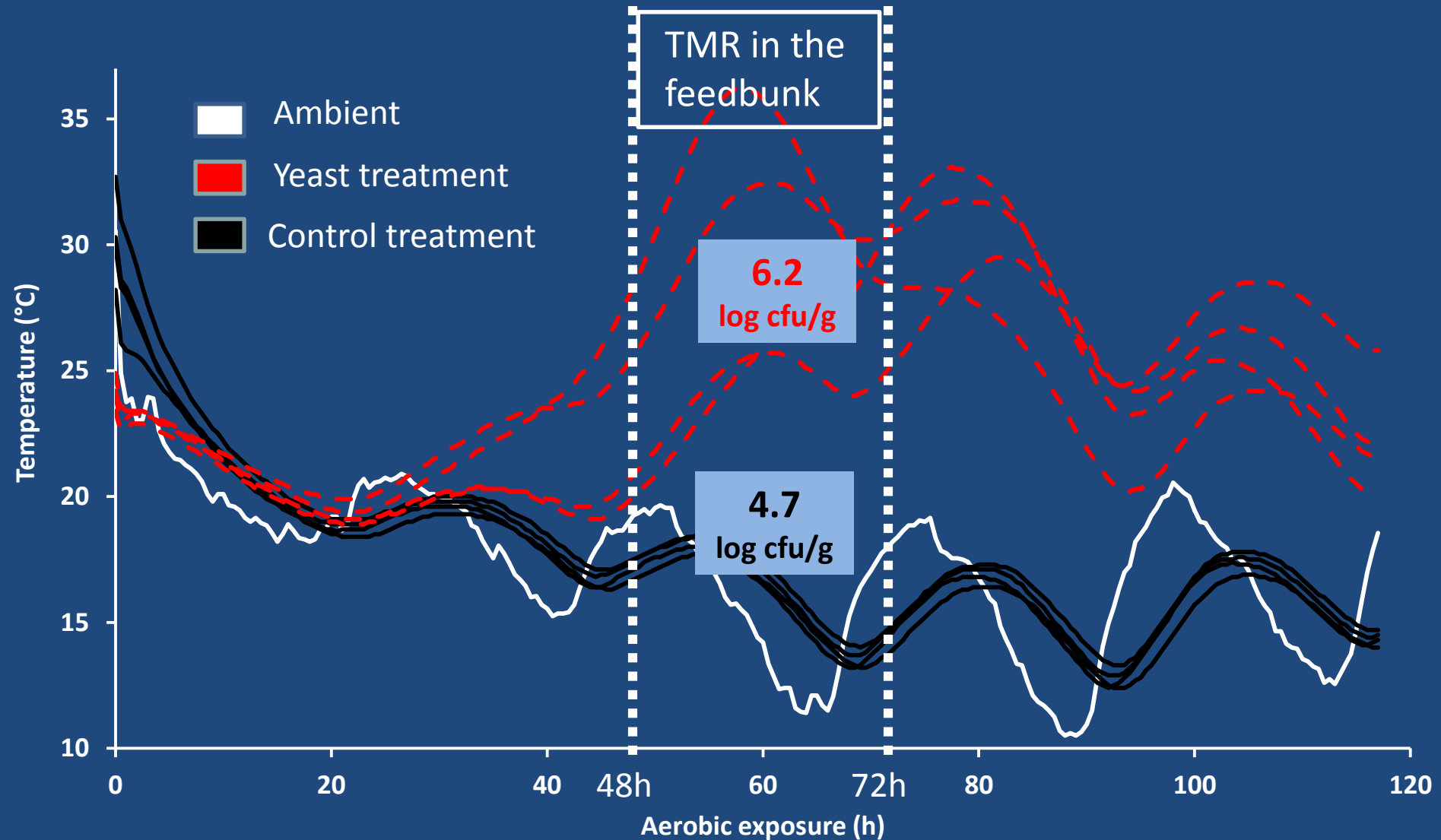
To evaluate the effects of **air exposure** and inoculation with ***Pichia norvegensis*** in corn silages on the performance of lactating dairy COWS.

Material and methods

- 2 Silages



Material and methods



Material and methods

- 20 cows → 5 replicated 4×4 Latin Squares



Material and methods

4 treatments:

- Control-Fresh Silage (CF)
- Control-Exposed Silage (CE)
- Yeast Inoculated-Fresh Silage (YF)
- Yeast Inoculated-Exposed Silage (YE)

Diets (DM basis):

- 53% corn silage
- 47% concentrates (soybean meal, whole cottonseed, citrus pulp, dry corn meal, mineral and vitamins premix)

Results

Dry matter intake (kg/d)

20.7



Fresh

Control

20.7



Exposed

21.3



Fresh

Yeast

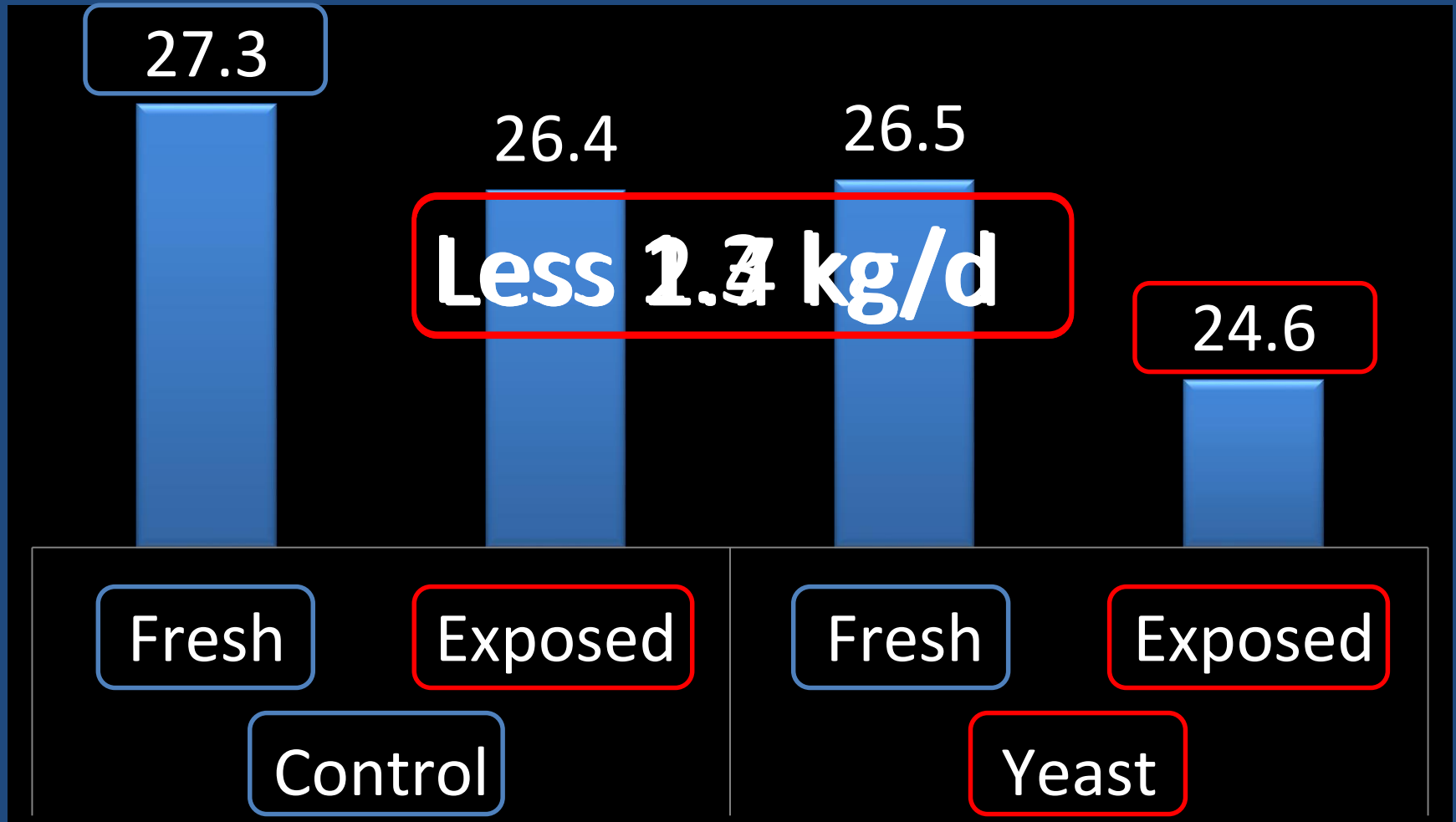
21.2



Exposed

P-value: Y - 0.21 E - 0.95 Y×E - 0.86

Fat-corrected milk (kg/d)



P-value: Y - 0.03 E - 0.02 Y×E - 0.34

Milk fat content (%)

3.82



3.67



3.69



3.68



Fresh

Exposed

Fresh

Exposed

Control

Yeast

P-value: Y - 0.48 E - 0.36 Y×E - 0.43

Milk urea-N (mg/dL)

11.21

11.81

11.12

11.97

More 6.1%

Fresh

Exposed

Fresh

Exposed

Control

Yeast

P-value: Y - 0.92 E - 0.05 Y×E - 0.74

Feed efficiency [Milk NE_L/DMI (Mcal/kg)]



P-value: Y - <0.01 E - 0.04 Y×E - 0.39

Conclusions

Both **air exposure** and inoculation of corn silages with *Pichia norvegensis* decreased:

- Milk yield
- Feed efficiency

No effects on:

- Feed intake
- Milk fat content

Acknowledgments



Thank you!



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