



Wild yeasts: the key to beer innovation?

Irma M.H. van Rijswijck, Saskia Zweers, Ralph van der Ploeg, Judith C.M. Wolkers–Rooijackers, Tjakko Abee, Eddy J. Smid

Laboratory of Food Microbiology, Wageningen University, part of Wageningen UR, The Netherlands

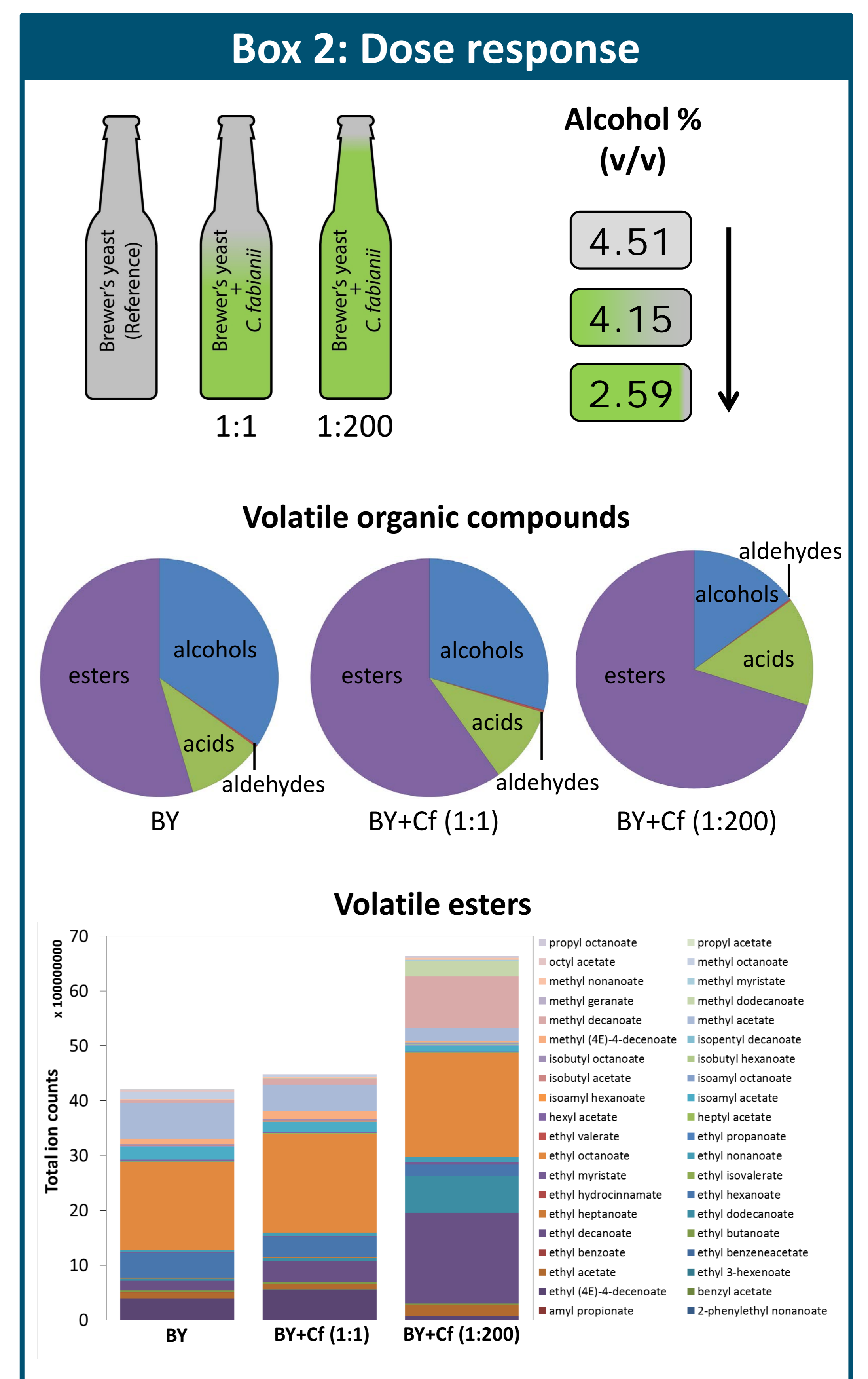
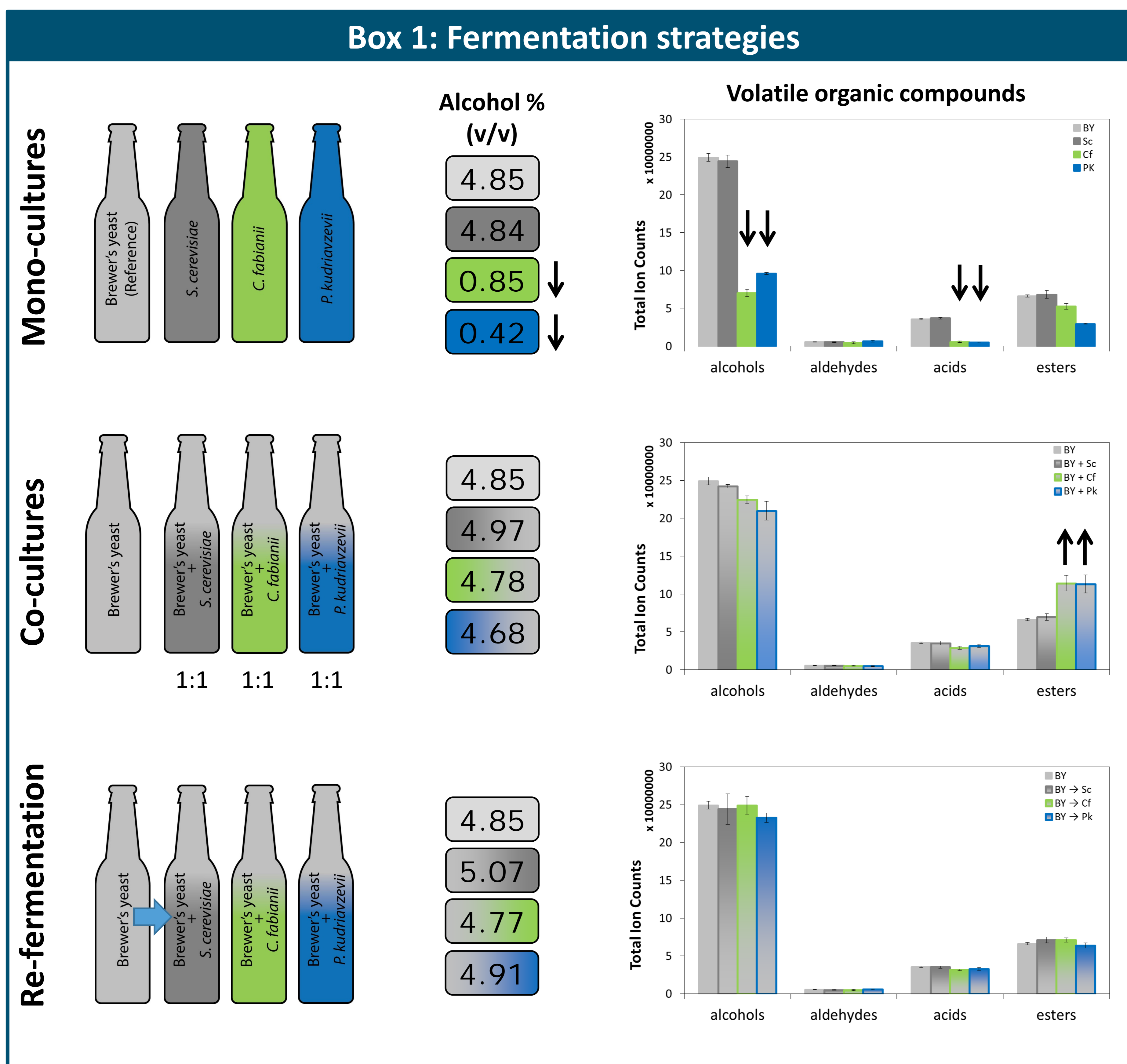
Introduction

Wild yeast isolates can yield desired properties for (commercial) food fermentation processes. Three wild yeast isolates (*Saccharomyces cerevisiae*, *Cyberlindnera fabianii* and *Pichia kudriavzevii*) were tested for their performance on wort and compared with a commercial Brewer's yeast (*S. cerevisiae*). Three fermentation strategies were used: mono-culture, co-culture and re-fermentation.

Dose response relationship *C. fabianii* (Box 2)

Prior to the 1st fermentation, the wort was inoculated with different ratio's of Brewer's yeast to *C. fabianii* (1:1 and 1:200) to test whether there is a dose response relationship of *C. fabianii* (Box 2).

The alcohol percentage (v/v) and volatile organic compounds were measured of the final product (Box 2).



Fermentation strategies (Box 1)

Wort was inoculated with either a mono-culture (single strain) or a co-culture of Brewer's yeast with one of the wild yeast isolates (ratio 1:1) and fermented for 7 days at 20 °C (1st fermentation). After the 1st fermentation, the ferment was transferred to the bottle for the 2nd fermentation (2 days 20 °C → 47 days at 4 °C). For the re-fermentation strategy, one of the wild yeast isolates was added to a primary ferment of Brewer's yeast during the transfer to the bottle (Box 1).

The alcohol percentage (v/v) and volatile organic compounds were measured of the final product (Box 1).

Conclusions

- Final product can be reformulated by the application of wild yeast isolates and by using different inoculation strategies (mono- and co-culture).
- A higher dose of *C. fabianii* leads to decreased alcohol percentage (v/v) and volatile alcohols while volatile acids and esters (with altered composition) increased.
- Wild yeasts are key to beer innovation!

