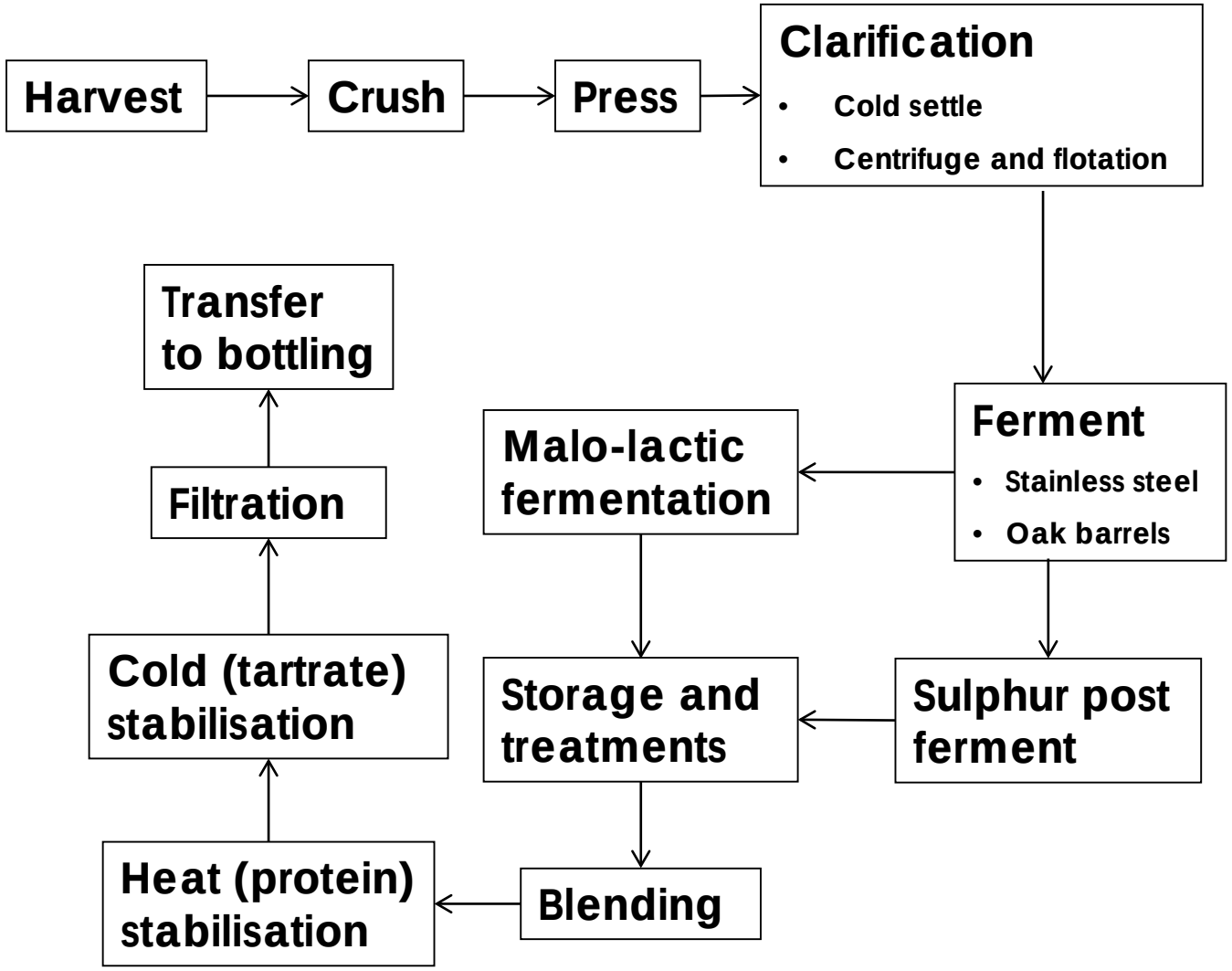
# Oxygen management in the winery and packaging

July 2018

Pernod Ricard Winemakers

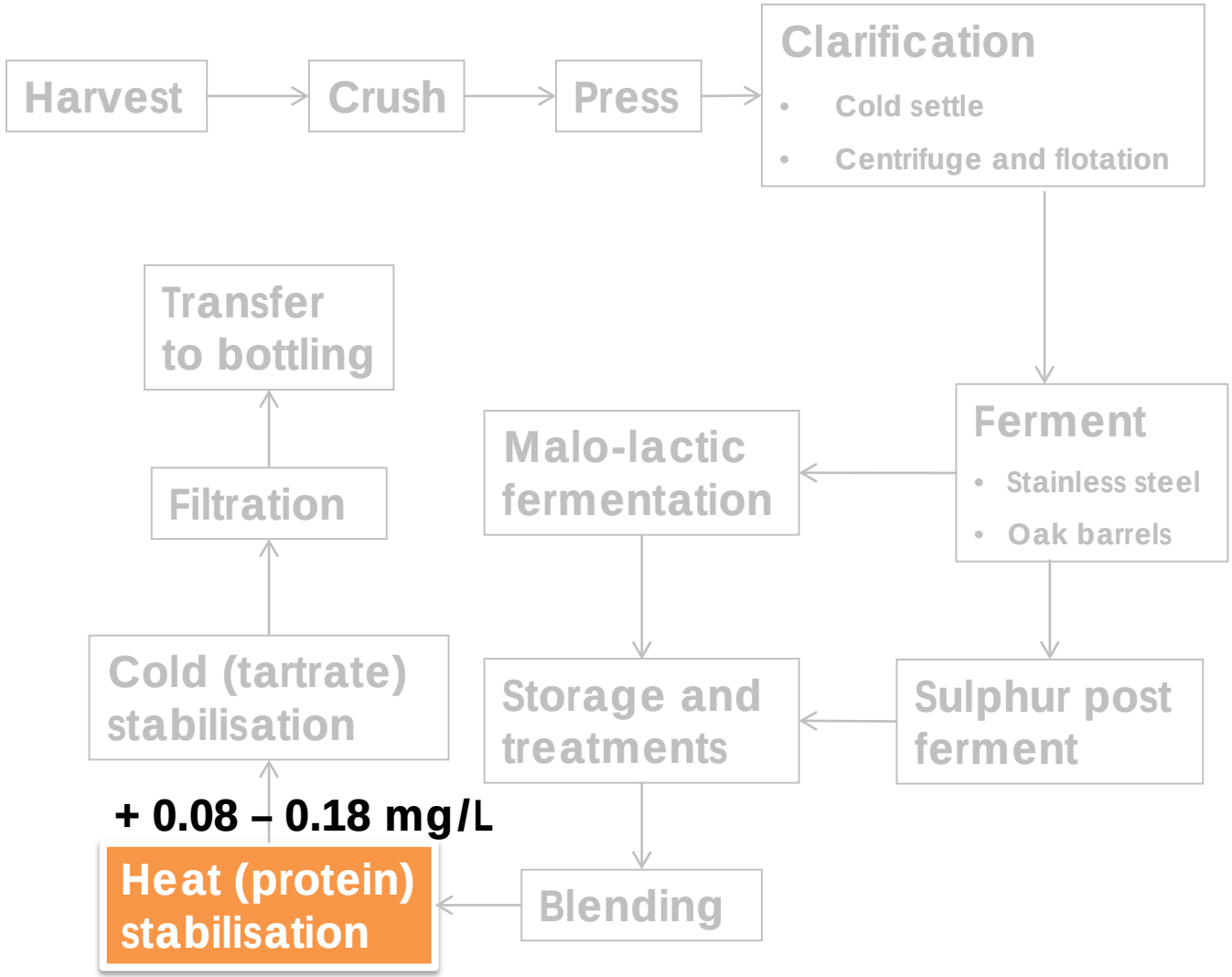
*Open Up Our World of Wines*

# $O_2$ through white winemaking



Pernod Ricard Winemakers
*Open Up Our World of Wines*

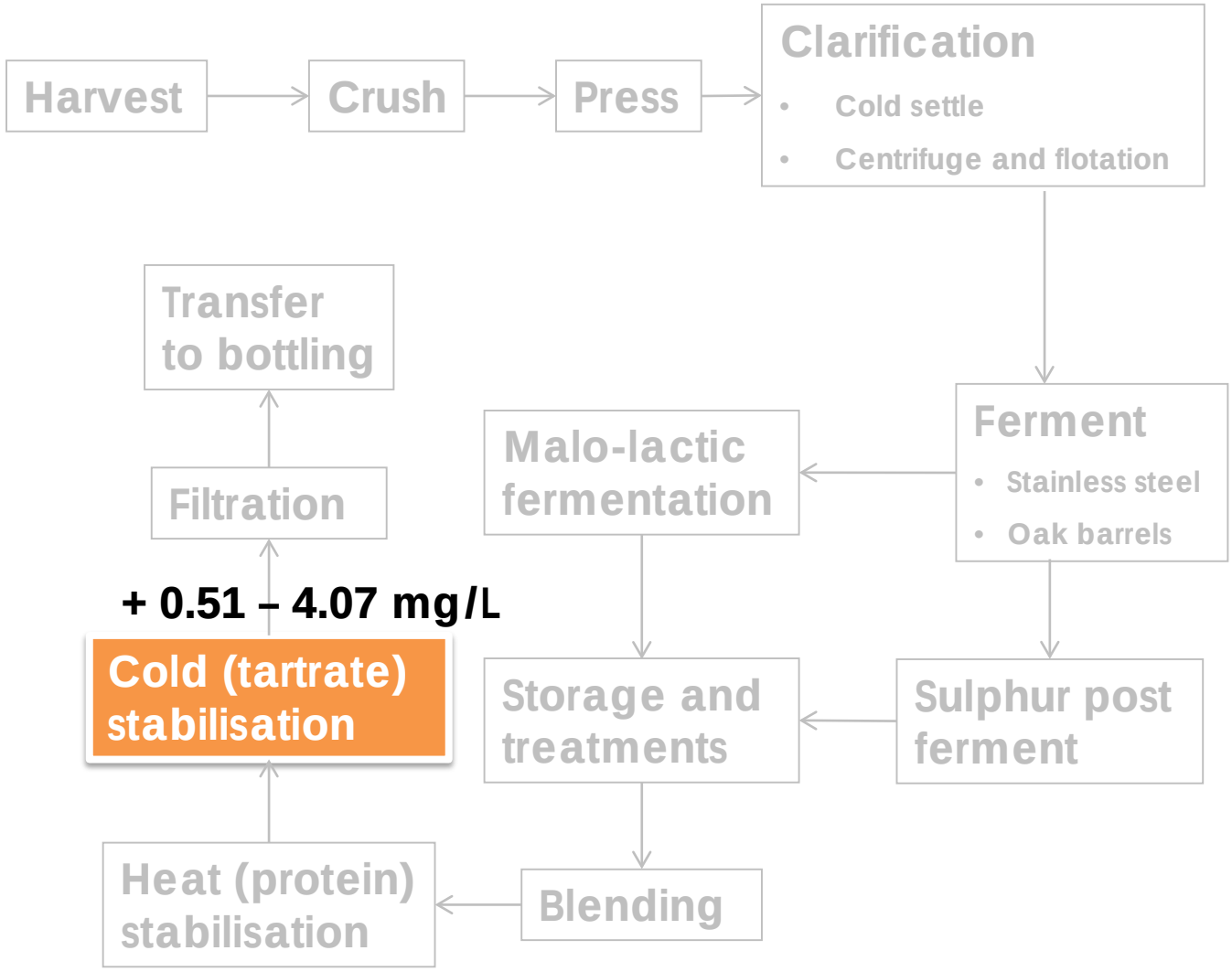
# $O_2$ through white winemaking



Catarino et al, Influence of Technological Operations in the Dissolved Oxygen Content of Wines, J. Chem. Chem. Eng. 8 (2014) 390-394

Pernod Ricard Winemakers
*Open Up Our World of Wines*

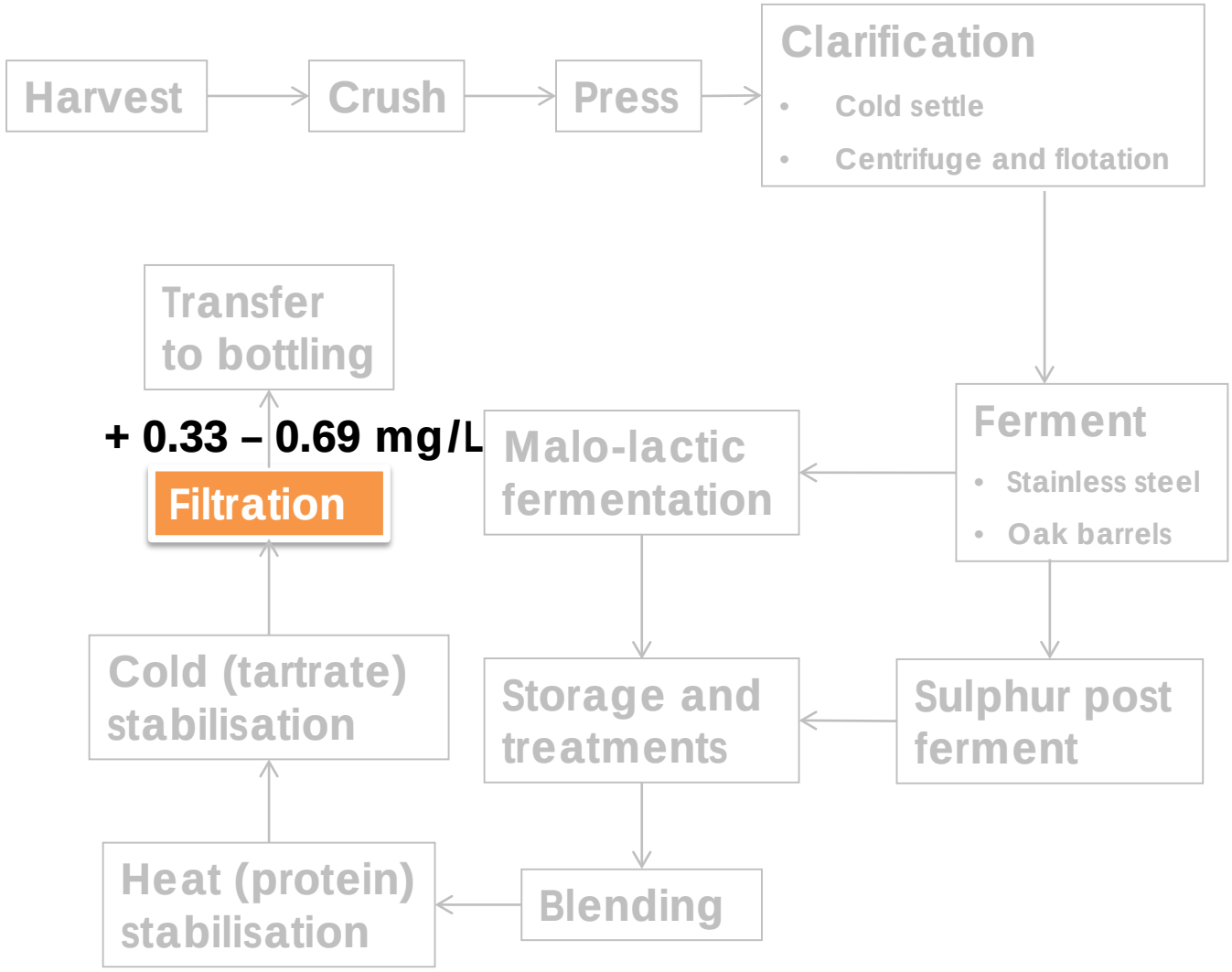
# $O_2$ through white winemaking



Catarino et al, Influence of Technological Operations in the Dissolved Oxygen Content of Wines, J. Chem. Chem. Eng. 8 (2014) 390-394

Pernod Ricard Winemakers
Open Up Our World of Wines

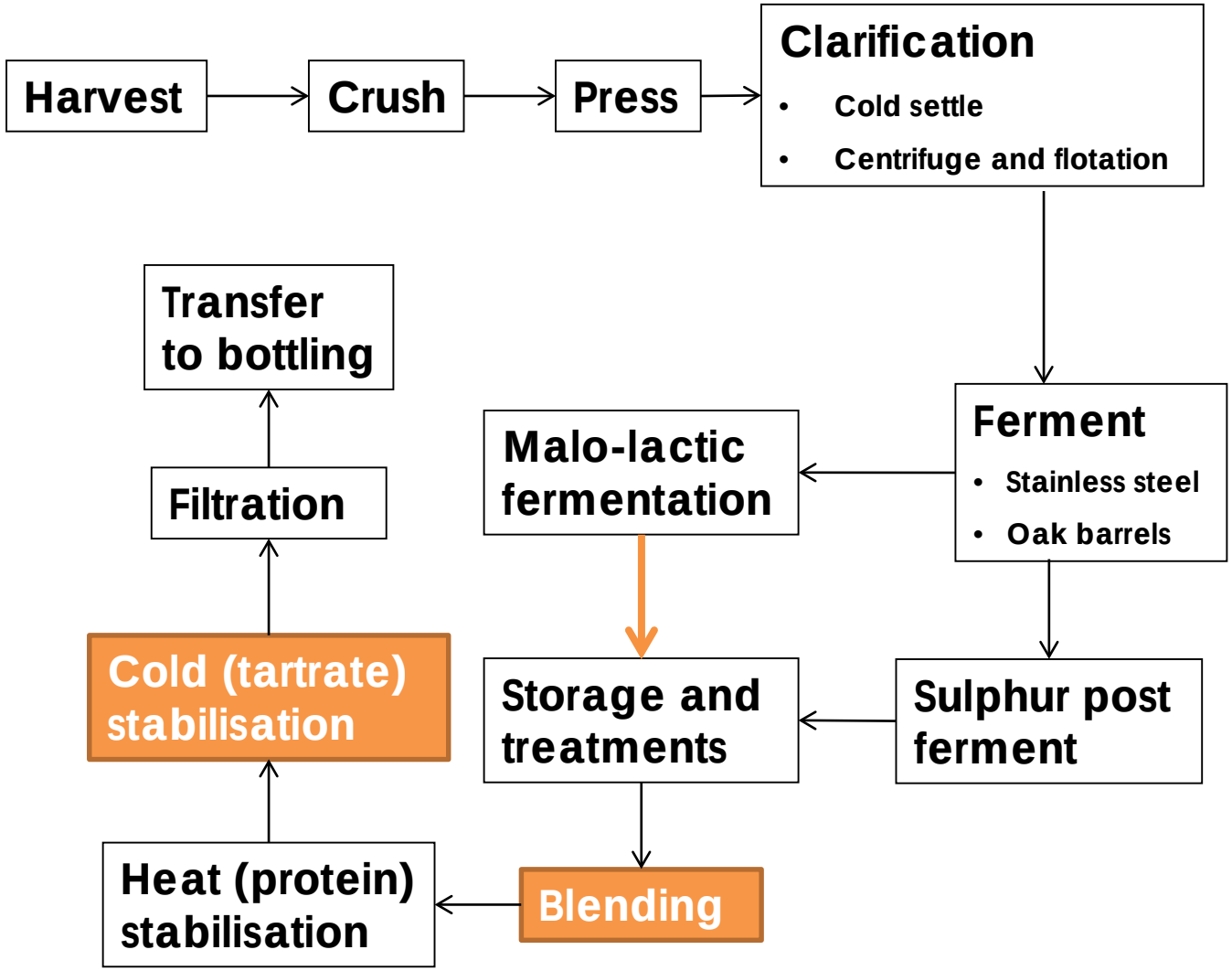
# $O_2$ through white winemaking



Catarino et al, Influence of Technological Operations in the Dissolved Oxygen Content of Wines, J. Chem. Chem. Eng. 8 (2014) 390-394

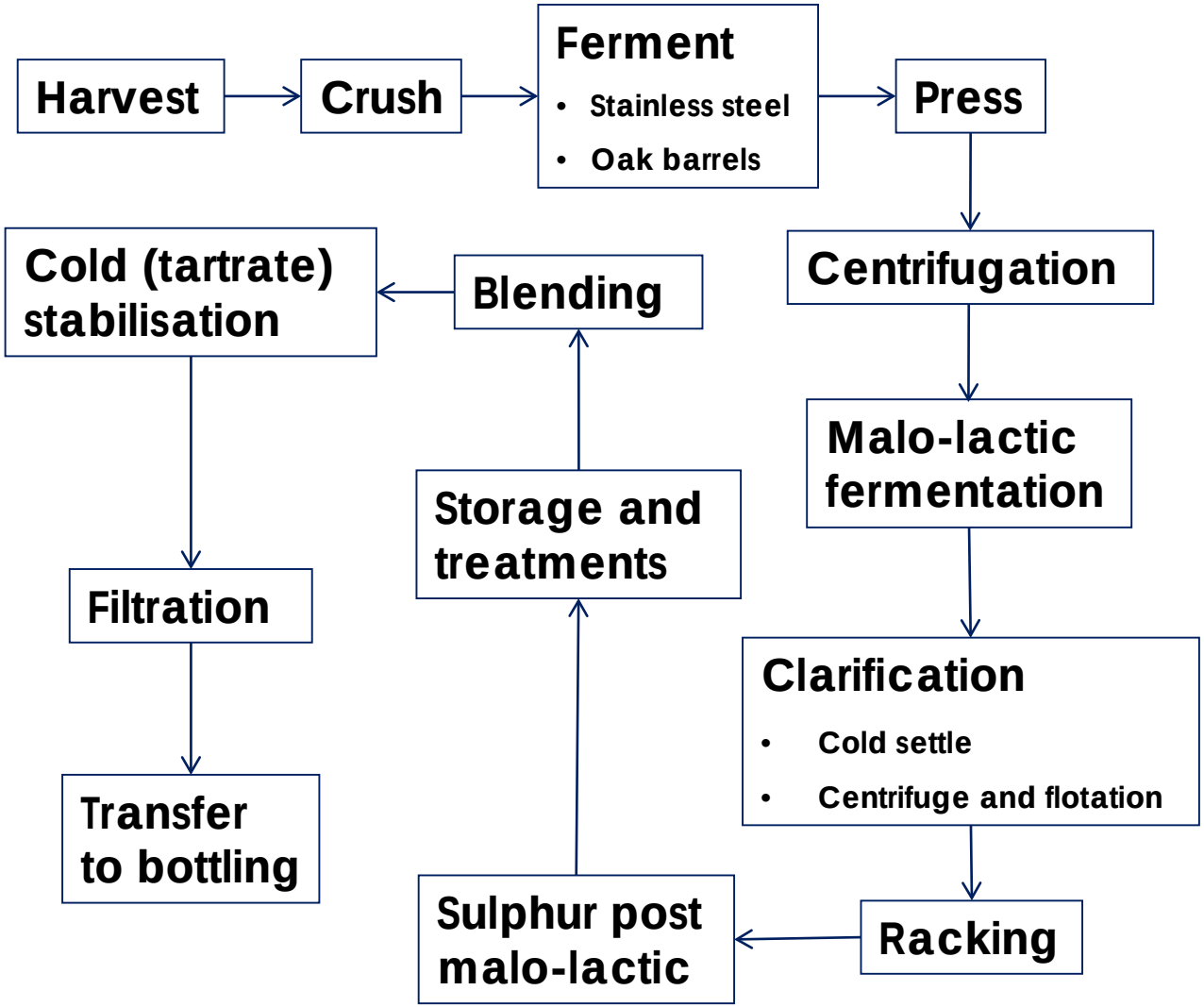
Pernod Ricard Winemakers
*Open Up Our World of Wines*

# PRW results – white wine



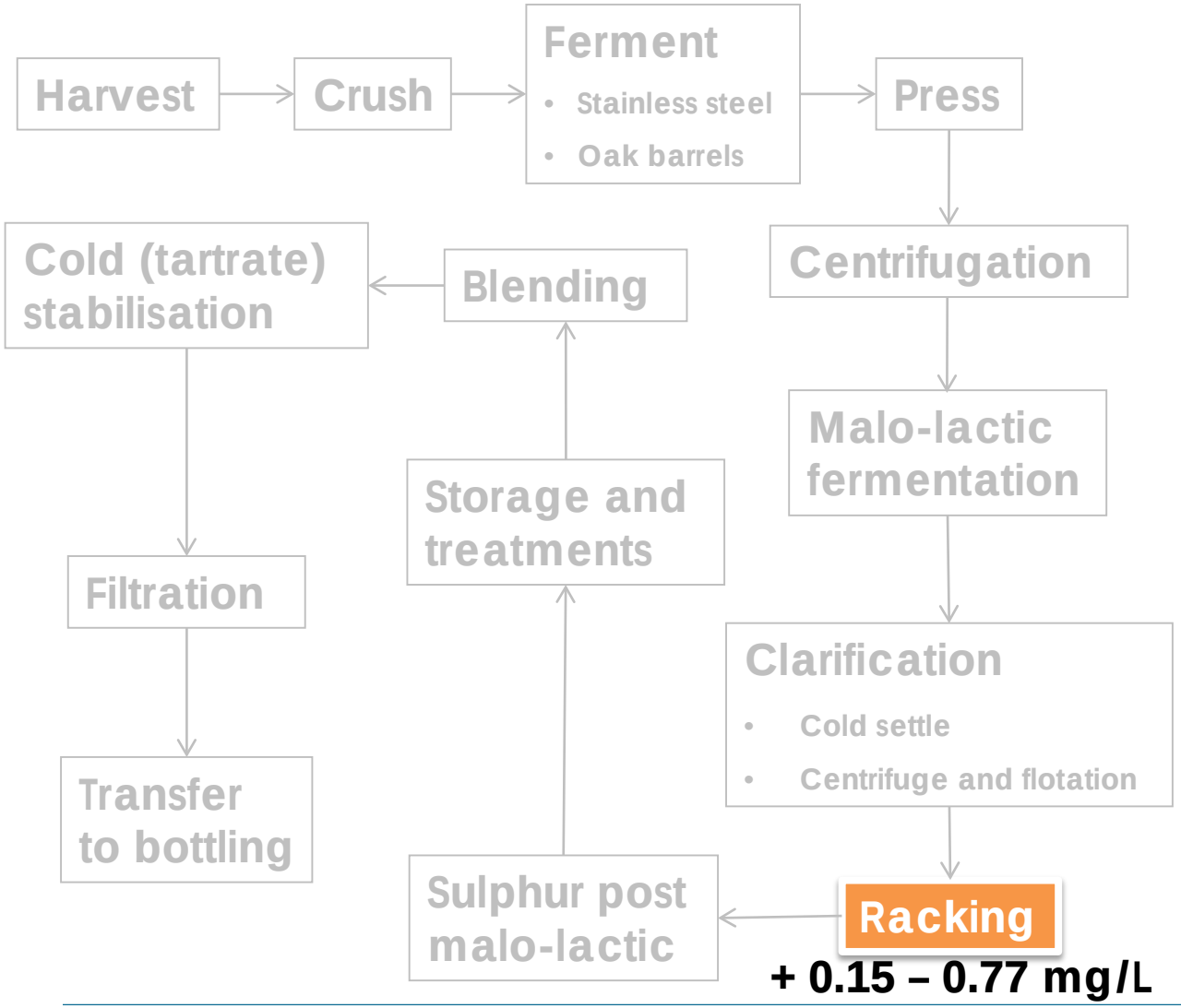
Pernod Ricard Winemakers
*Open Up Our World of Wines*

# $O_2$ through red winemaking



Pernod Ricard Winemakers
*Open Up Our World of Wines*

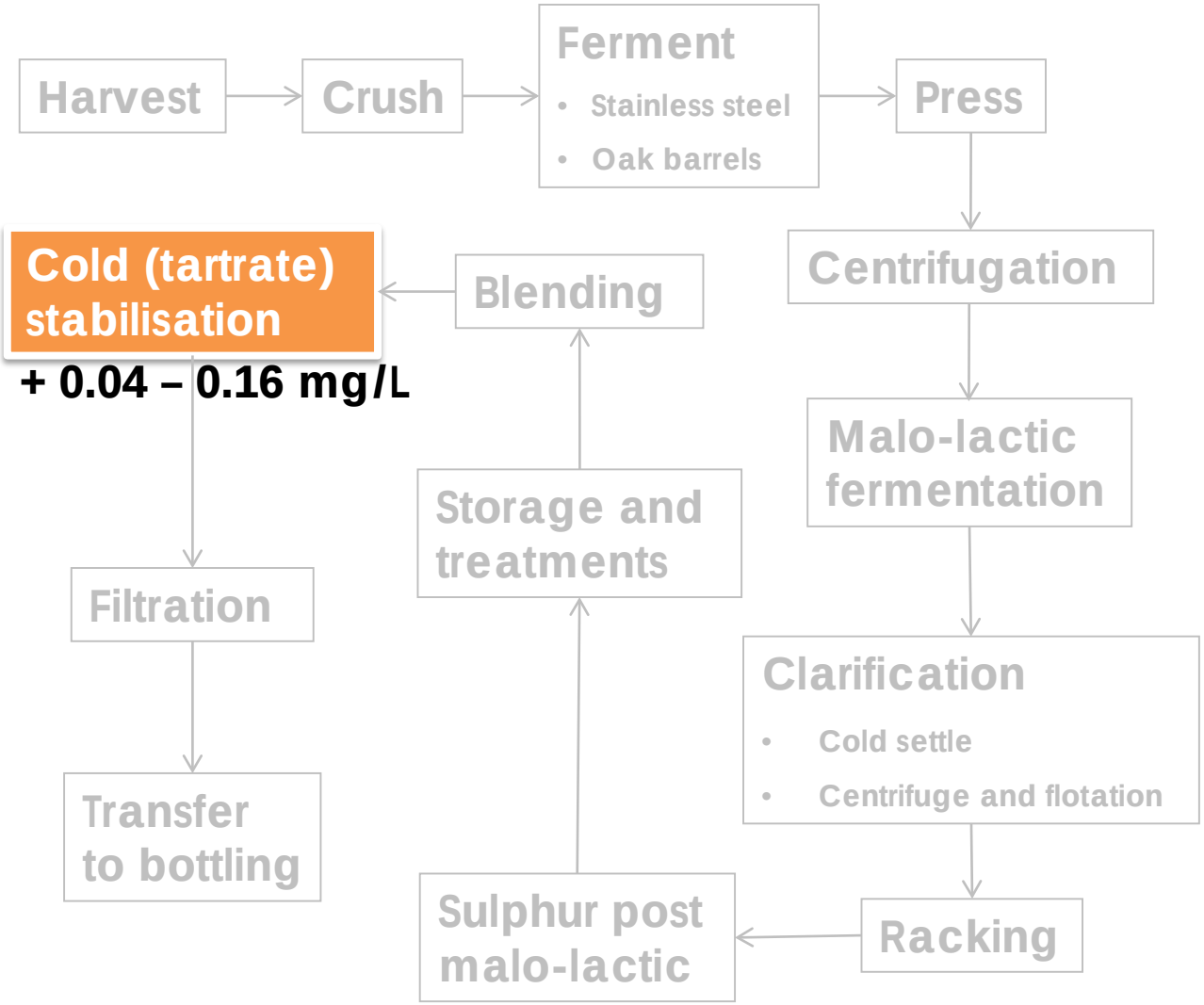
# $O_2$ through red winemaking



Catarino et al, Influence of Technological Operations in the Dissolved Oxygen Content of Wines, J. Chem. Chem. Eng. 8 (2014) 390-394

Pernod Ricard Winemakers
*Open Up Our World of Wines*

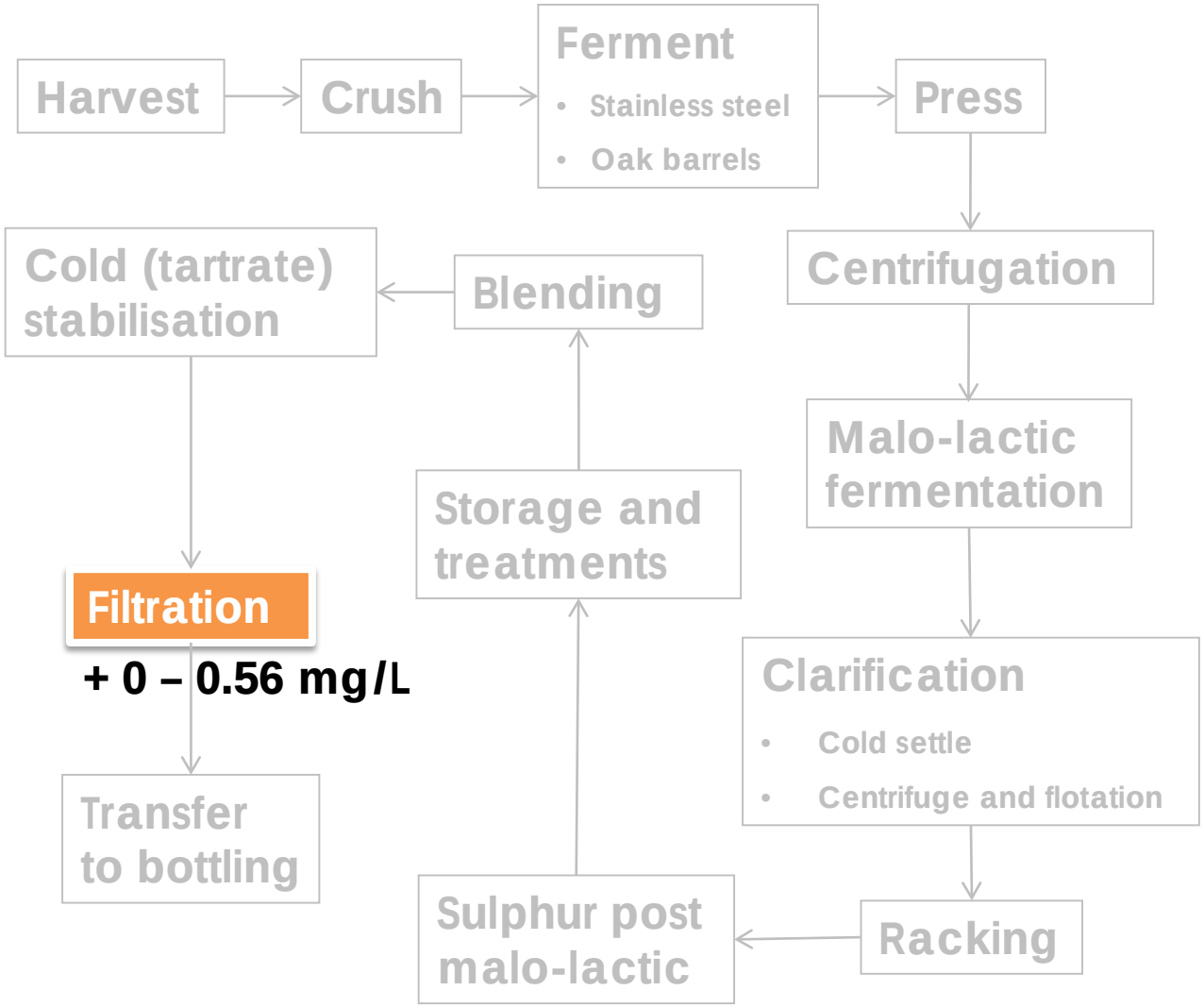
# $O_2$ through red winemaking



Catarino et al, Influence of Technological Operations in the Dissolved Oxygen Content of Wines, J. Chem. Chem. Eng. 8 (2014) 390-394

Pernod Ricard Winemakers
*Open Up Our World of Wines*

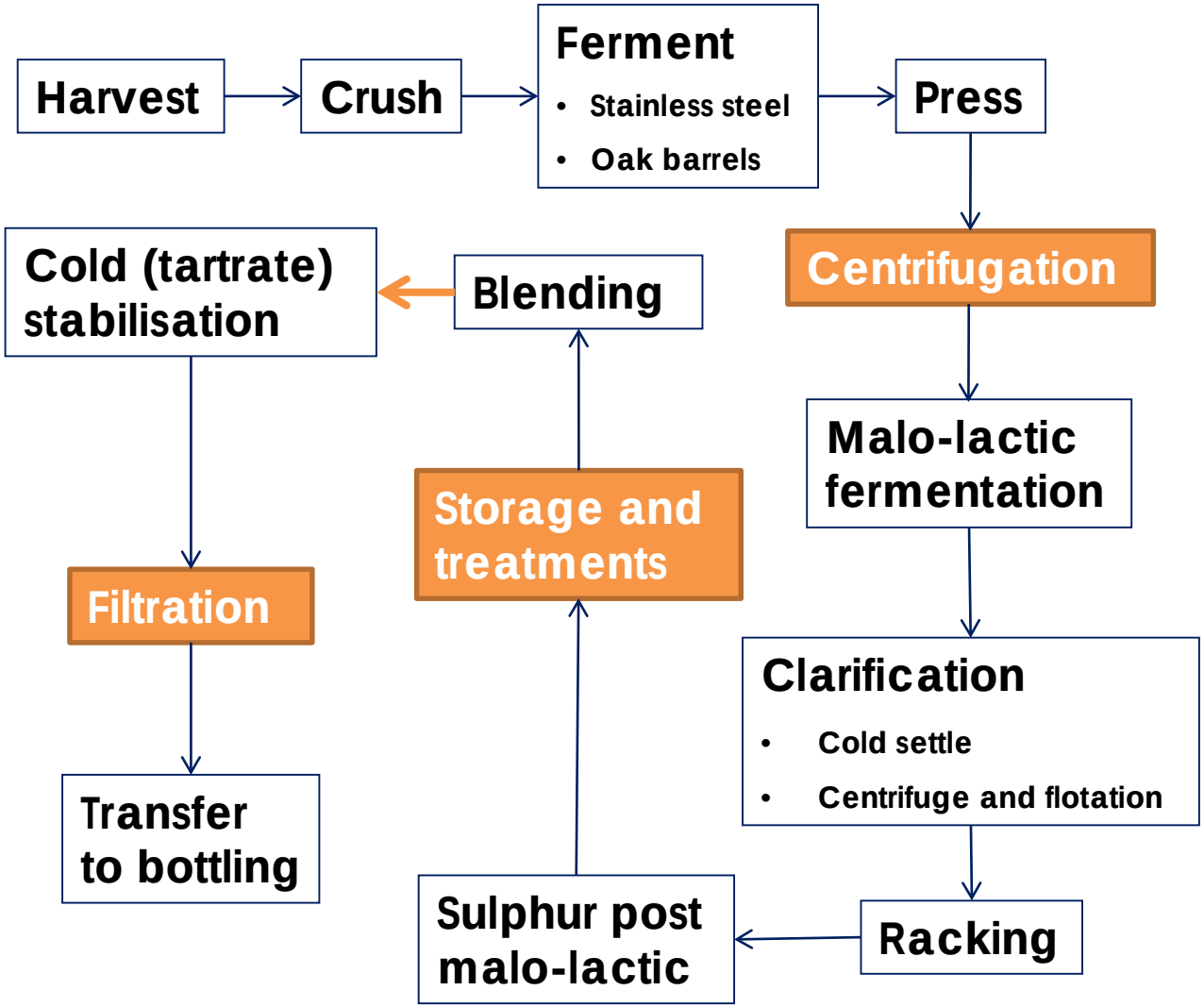
# $O_2$ through red winemaking



Catarino et al, Influence of Technological Operations in the Dissolved Oxygen Content of Wines, J. Chem. Chem. Eng. 8 (2014) 390-394

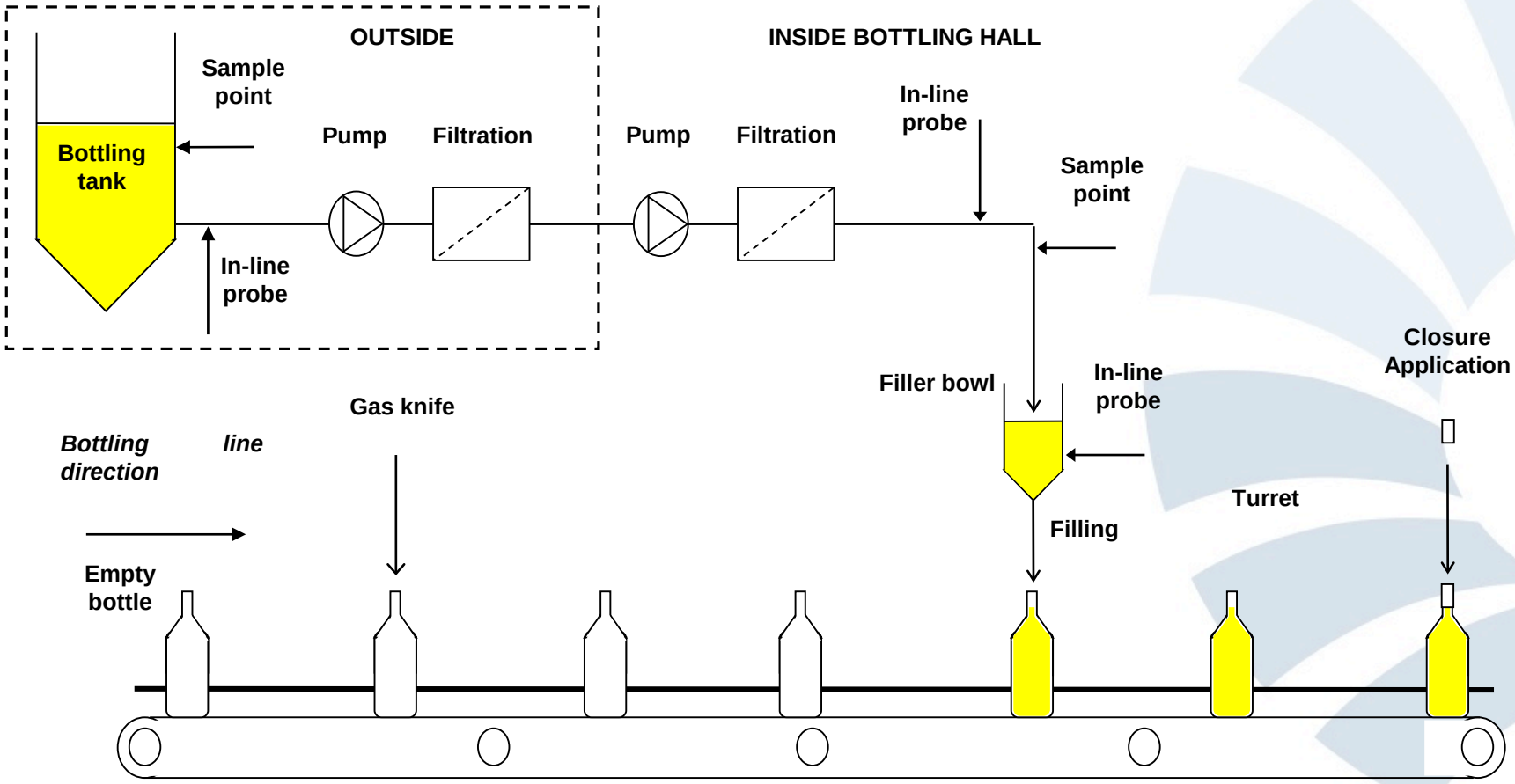
Pernod Ricard Winemakers
*Open Up Our World of Wines*

# PRW results – red wine



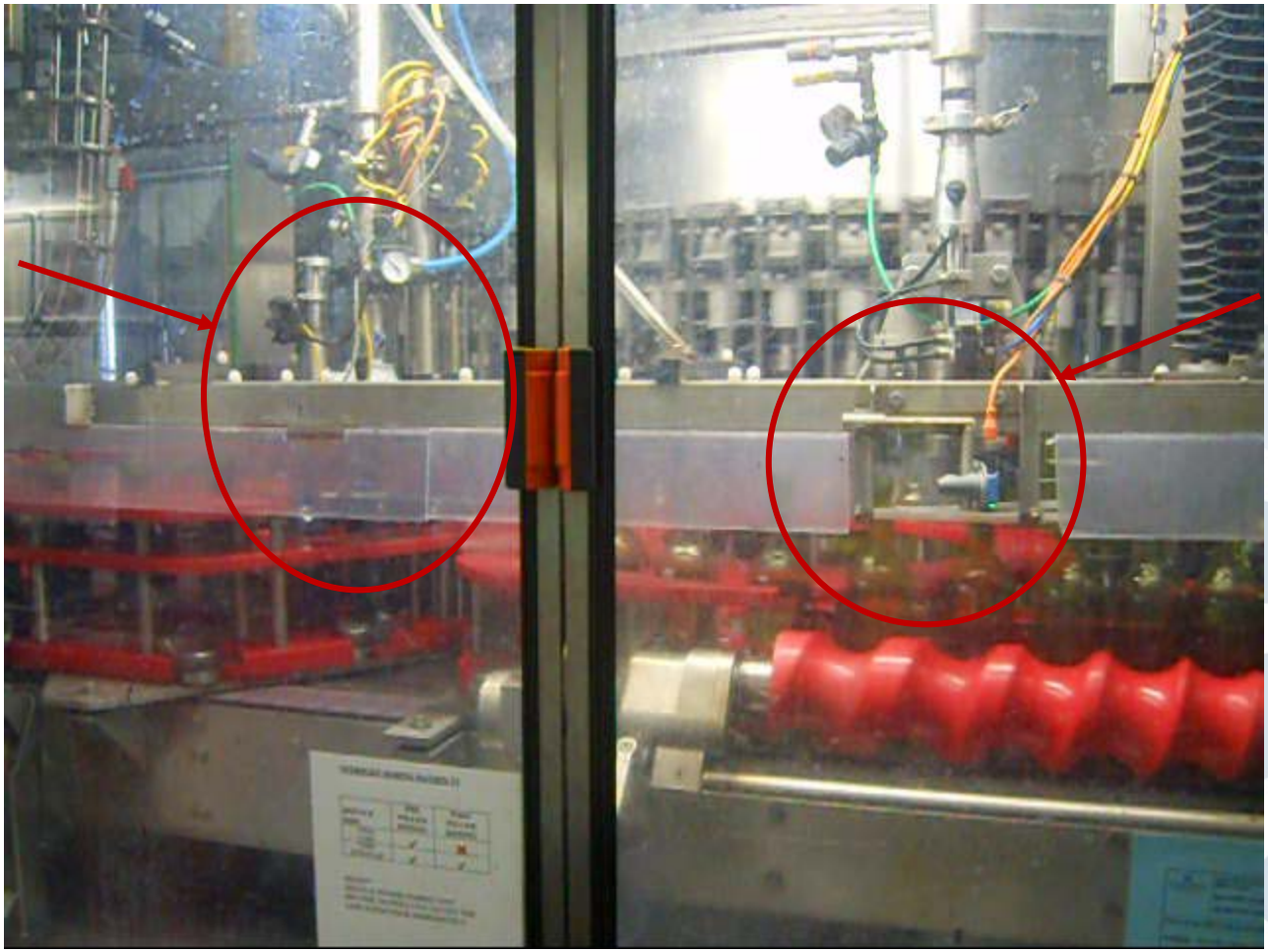
Pernod Ricard Winemakers
*Open Up Our World of Wines*

# $O_2$ at packaging



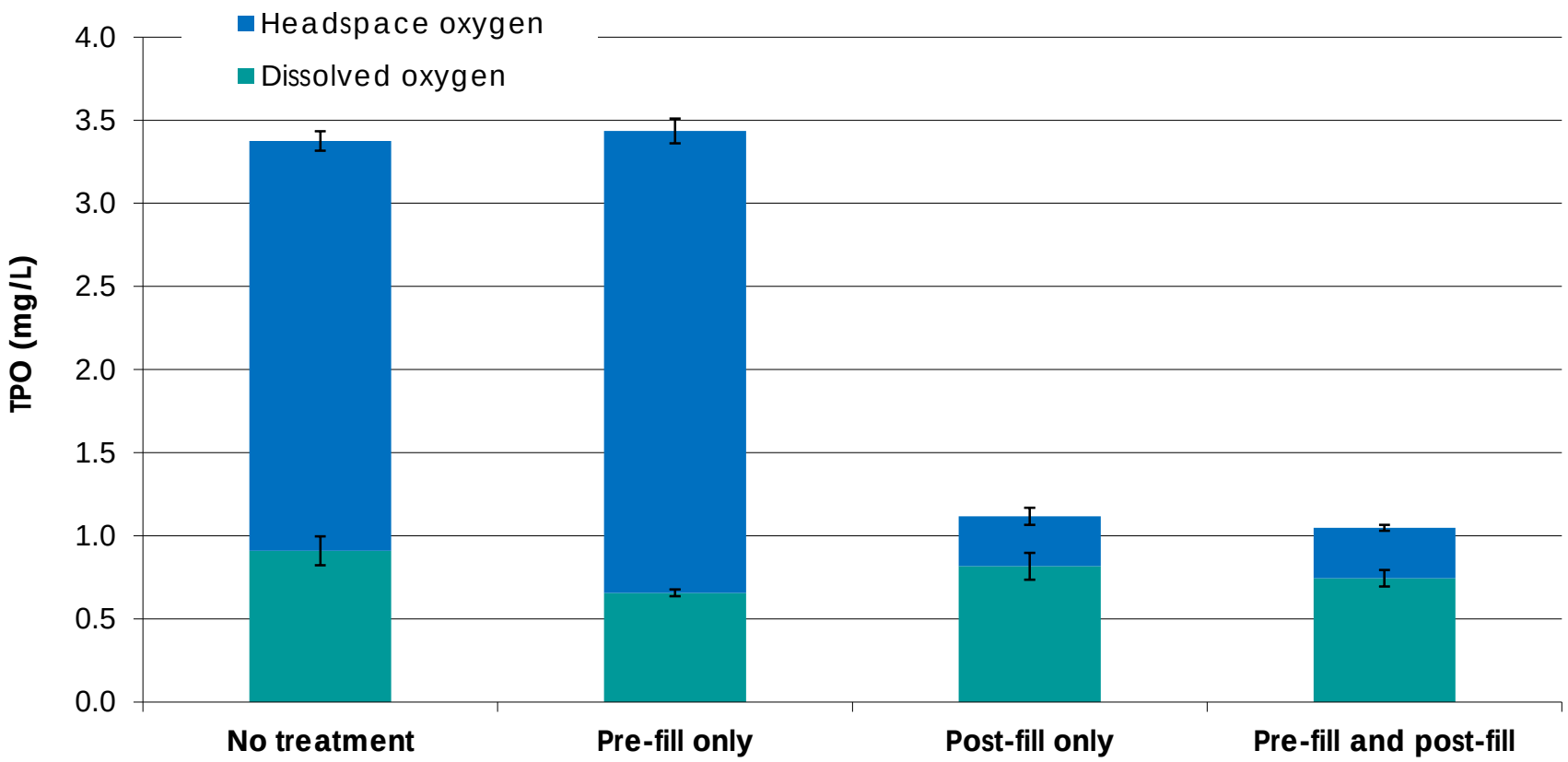
# Cryotech liquid nitrogen system

**Post-fill LN2 dosing**



**Pre-fill LN2 dosing**

# Cryotech liquid nitrogen system

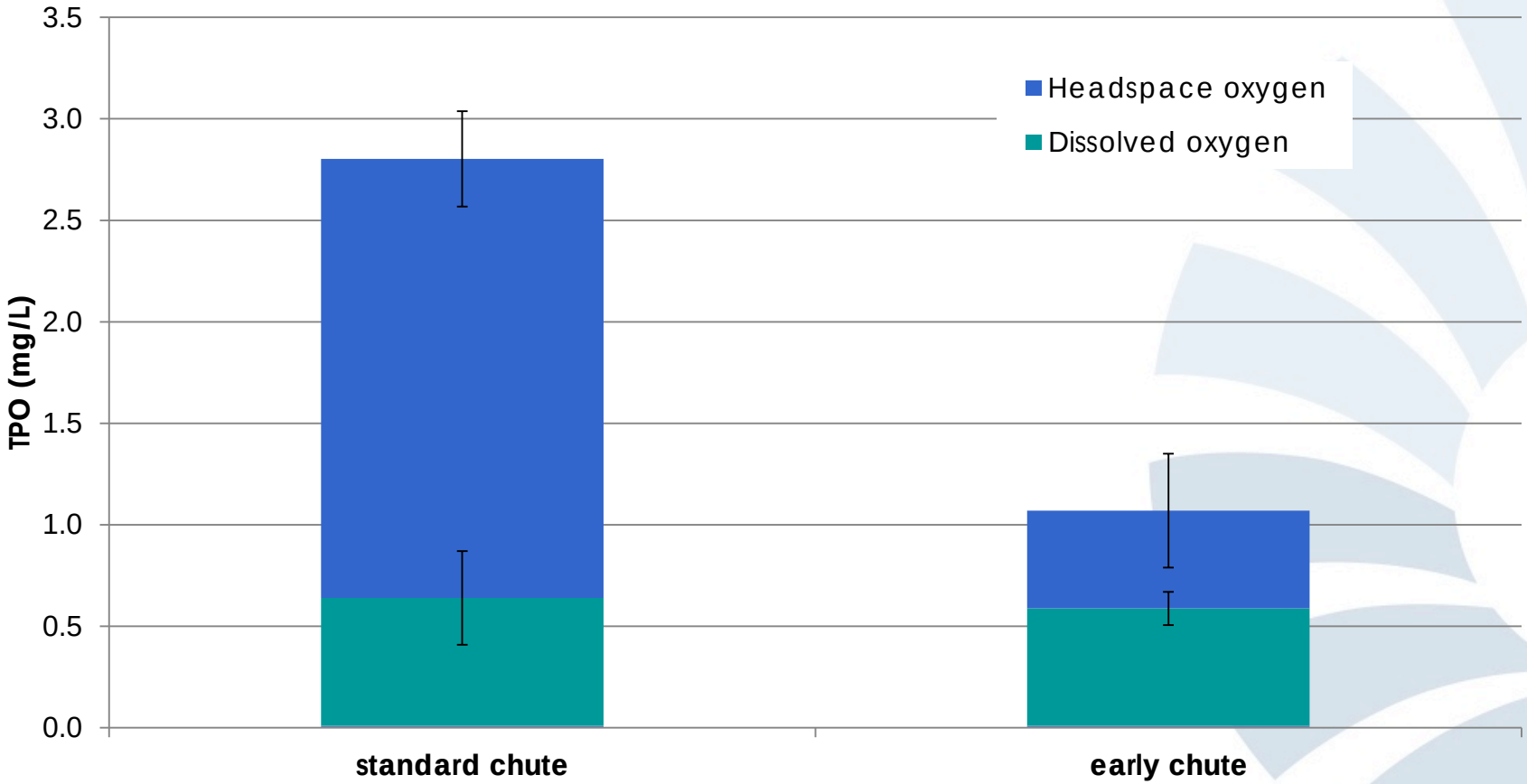



Significant decrease in TPO levels

Pernod Ricard Winemakers
*Open Up Our World of Wines*

# Relocation of the cap delivery chute

# Relocation of the cap delivery chute

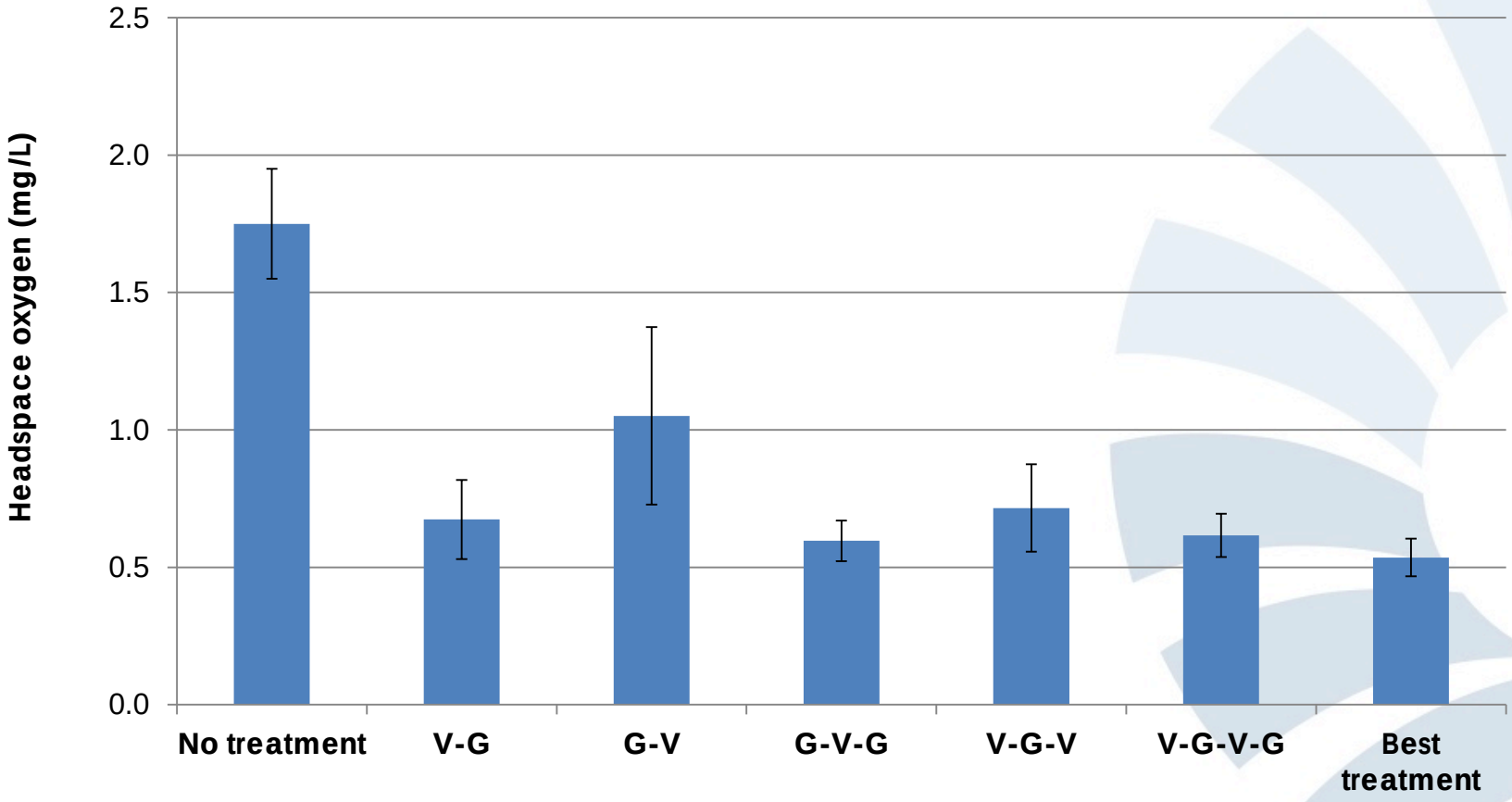



Reduction in TPO levels

Pernod Ricard Winemakers
Open Up Our World of Wines

# Deaeration turret

# Deaeration turret




Turret settings affect headspace oxygen levels

# Improvements to the bottling line have reduced oxygen pickup

Oxygen pickup reduced at each stage:

- Bottling tank – 69%
- Filler bowl – 53%
- DO in bottle – 58%
- Total package oxygen – 55%

# Take-home messages

- Oxygen is essential to life, but can have a big impact
- Oxygen management is critical to wine quality
- Recent focus on winery to find out how much oxygen is picked up at each process
- Measurement and trouble-shooting at bottling also critical
- Bottling and packaging are also critical