# DIVERSIFY TO CREATE YOUR OWN UNIQUE BEER(S)
# BY
# YEAST
# AND/OR
# FERMENTATION PARAMETERS

BREWERY RESOURCE ROADSHOW – HOPWALK 2019, UK

THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION

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Fermentis by Lesaffre

E2U EASY USE by Fermentis

CREATE YOUR OWN UNIQUE BEER

# DIVERSIFY BY YEAST: NEIPA

THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION

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# New England IPA – HAZY IPA

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# Juicy Beer?

PRESS RELEASES

## BREWERS ASSOCIATION RELEASES 2018 BEER STYLE GUIDELINES

March 20, 2018

### New Categories Include Three Styles of Juicy or Hazy Ales

**Boulder, Colo. • March 20, 2018**—The Brewers Association (BA)—the not-for-profit trade group dedicated to promoting and protecting America's small and independent craft brewers—today released its Beer Style Guidelines for 2018. Reviewed and revised annually by the BA, these guidelines serve as a model resource for brewers, beer judges and competition organizers, and celebrate the great diversity of beer around the world.

Hundreds of revisions, edits, format changes and additions were made to this ye guidelines, including updates to existing beer styles and the creation of new cat Updates of note include:

- **Juicy or Hazy Ale Styles:** The addition of this trio of styles include represe what may be referred to as New England IPAs or West Coast Hazy IPAs. T will be identified in the guidelines and Brewers Association competitions a **Hazy Pale Ale," "Juicy or Hazy IPA"** and **"Juicy or Hazy Double IPA."**
- **Contemporary American-Style Pilsener:** The addition of this new cate addresses marketplace expansion and provides space for sessionable lager beers with higher hop aroma than found in pre-prohibition style be
- **Classic Australian-Style Pale Ale and Australian-Style Pale Ale:** Th one to two Australian-Style Pale Ale categories reflects tremendous di Australian craft beer market and authoritative input from the technical the Independent Brewers Association. Classic Australian-Style Pale slightly darker and typically exhibits relatively lower hop aroma. The Pale Ale category provides ample room for a range of somewhat pa aroma- and flavor-forward beers being produced today by hundred

CERTIFICATION PROGRAM

Beer Judge

Style Guidelines

Exam & Certification

Competitions

Education & Training

Communications

Member Services

International Resources

NEWS FAQ

Home / Beer Styles / 21B. Specialty IPA: New England IPA

## 21B. Specialty IPA: New England IPA

February 21, 2018

### Overall Impression

An American IPA with intense fruit flavors and aromas, a soft body, and smooth mouthfeel, and often opaque with substantial haze. Less perceived bitterness than traditional IPAs but always massively hop forward. This emphasis on late hopping, especially dry hopping, with hops with tropical fruit qualities lends the specific 'juicy' character for which this style is known.

### Aroma

Intense hop aroma, typically with fruity qualities (stone fruit, tropical fruit, and citrus are most commonly present) reflective of newer American and New World hop varieties without being grassy or herbaceous. Clean, neutral malt in the background, potentially with a light bready sweetness without caramel or toast. Absence of any malt character i a fault. Neutral to fruity fermentation character that is well-integrated with the hops. A creamy, buttery, or acidic aroma is inappropriate. Any perceived alcohol character shou be restrained and never hot.

### Appearance

Color ranges from straw to yellow, sometimes with an orange hue. Hazy, often opaque, clarity; should not be cloudy or murky. The opacity can add a 'shine' to the beer and make the color seem darker. Any visible floating particulates (hop matter, yeast clumps, etc.) are a fault. Medium to rocky meringue white head with high to very high retention.

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NEW ENGLAND IPA STYLE GUIDELINES

# NEIPA – SENSORY ASPECTS

## HAZY IPA

- **Juicy** - ripe / over-ripe fruity juice, especially tropical.
- **Hazy**. Somewhat opaque, light-reflecting haze. Should not look like a yeast starter or a protein shake.
- **Pale color** (straw to golden), but some examples can have an orange hue.
- **Foam** A dense, white, rocky, persistent head is common.
- **Intense Hop Aroma / Flavor**: The aroma and flavor should be dominated by hops, intense and fresh. The **hop varieties used are commonly associated with ripe or overripe tropical fruit** (mango, passionfruit, guava, pineapple, papaya, etc.), also stone fruit (apricot, peach) or citrus (orange, tangerine) characters allowed. *Excessively resiny, piney, spicy, or grassy characteristics are not typically found.
- **Neutral malt profile.** A light toasty, honey-like, or biscuity malt flavor can sometimes be found, but the malt should not interfere with the appreciation of the hops.
- **Bitterness** moderate to low level, smooth and soft finish.
- **Body** is supportive to the alcohol content (shouldn’t be a lot), it shouldn’t be sugary sweet and heavy from unfermented sugars.

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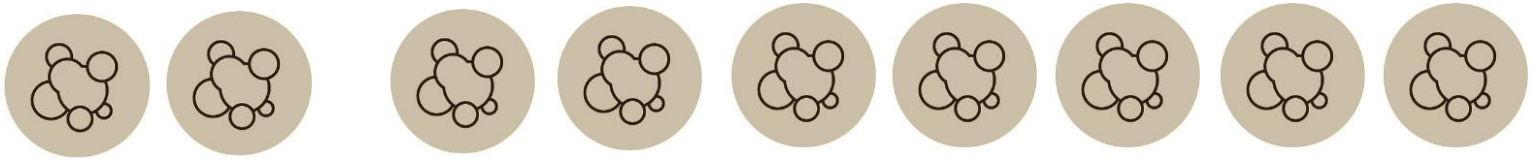
# 1 type of NEIPA recipe:
# 3 hops varieties
# 9 types of yeast



- 2 lager Yeasts
- 7 ale Yeasts (2 POF+)

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NEIPA

# RECIPE

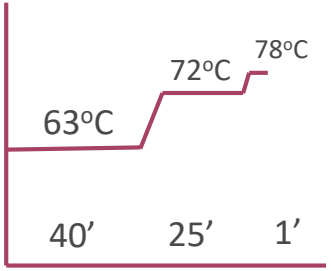
- Yeasts Studied

| |
|---|
| S33 |
| S04 |
| US05 |
| K97 |
| BE256 |
| BE134 |
| T58 |
| S189 |
| S23 |

## Wort

**16ºP**
10% flaked oats
10% flaked wheat
80% pils malt

## Mash




## Fermentation:

**23ºC**

## Maturation (25%)

**10ºC**

## Centrifugation

## Hops

Citra
Simcoe
Mosaic

**1 kg / hL**

Regimes:
15' whirlpool (25%)
Fermentation 2 days (25%)
Fermentation 4 days (25%)

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NEIPA

# FERMENTIS SENSORY PANEL

## Fermentis Beer Panel

| Random, blind, repetions, statistics tests! | Weekly Sessions | 40 panelists (trained tasters) |
|---|---|---|

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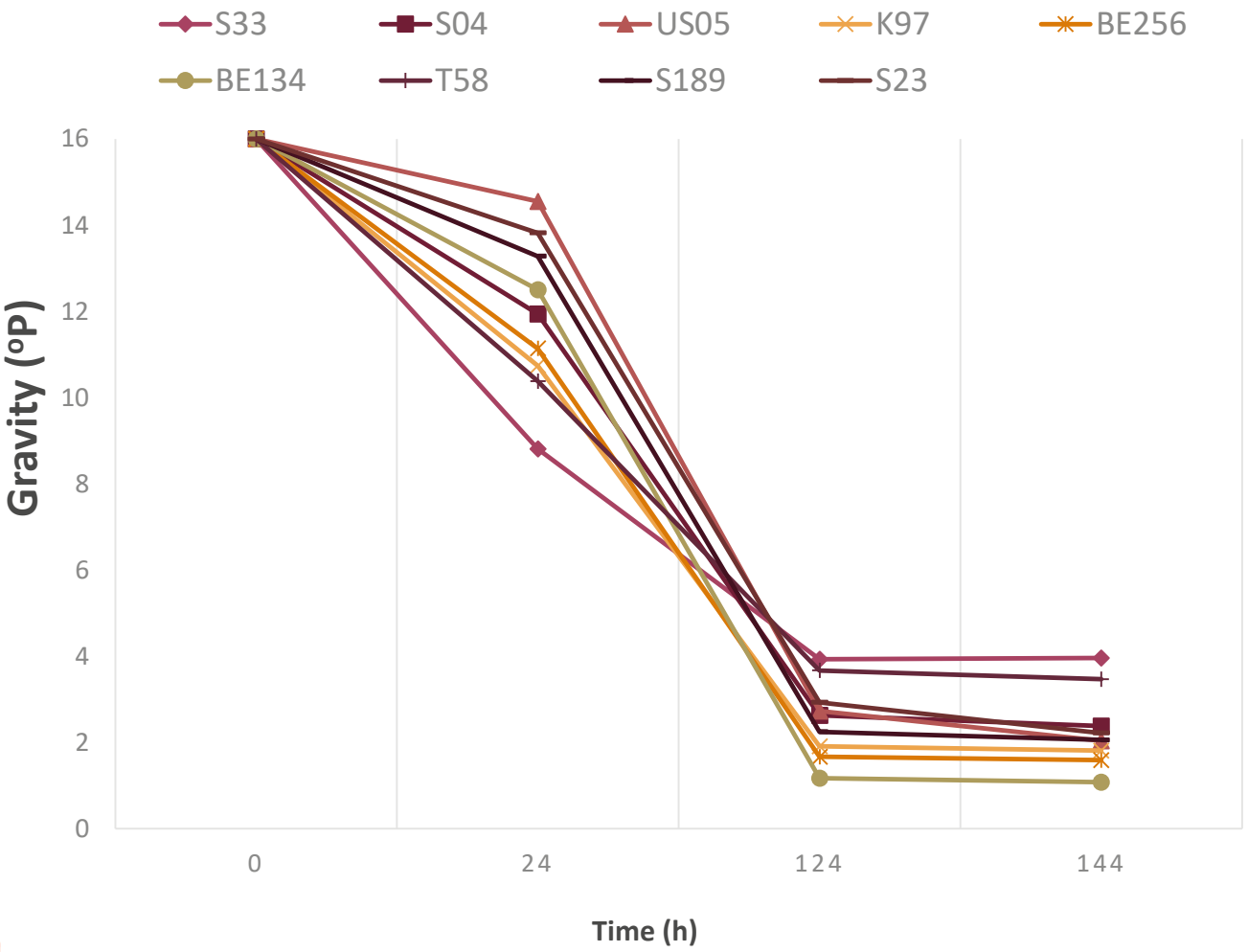
NEIPA RESULTS

# FERMENTATION PERFORMANCE

- Yeasts Studied

| |
|---|
| S-33 |
| S-04 |
| US-05 |
| K-97 |
| BE-256 |
| BE-134 |
| T-58 |
| S-189 |
| S-23 |

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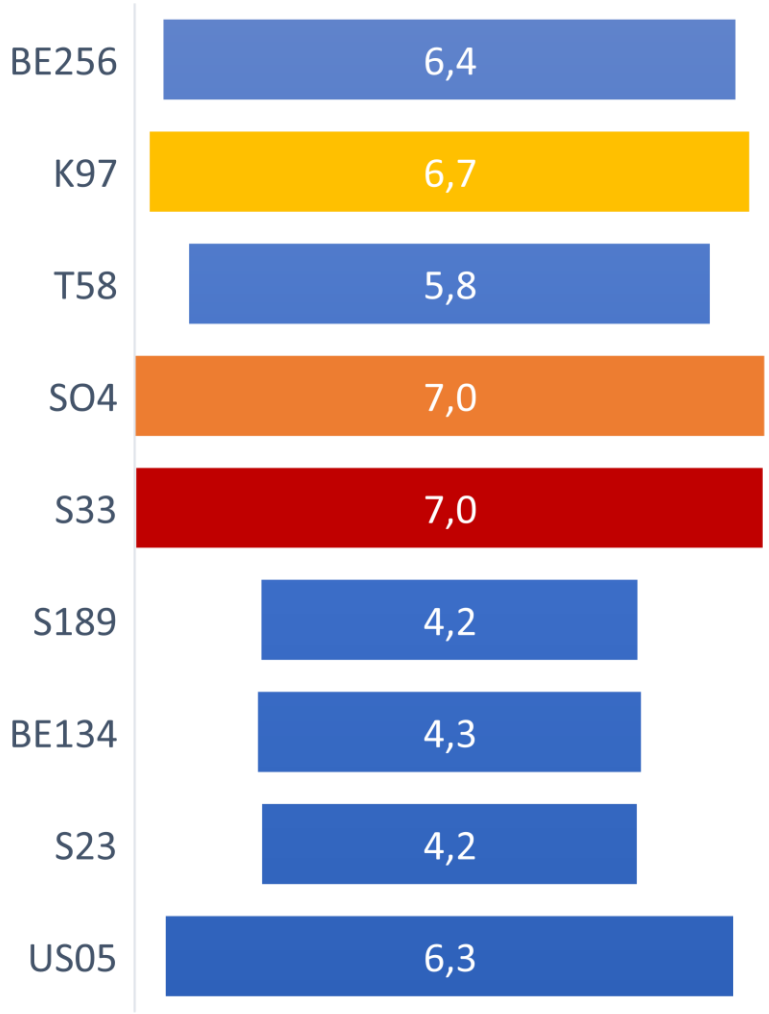
NEIPA SENSORY CHARACTERISTICS

# TURBIDITY LEVEL




None, **brillant**

Very strong, **opaque**

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NEIPA SENSORY CHARACTERISTICS

# MALT CHARACTER




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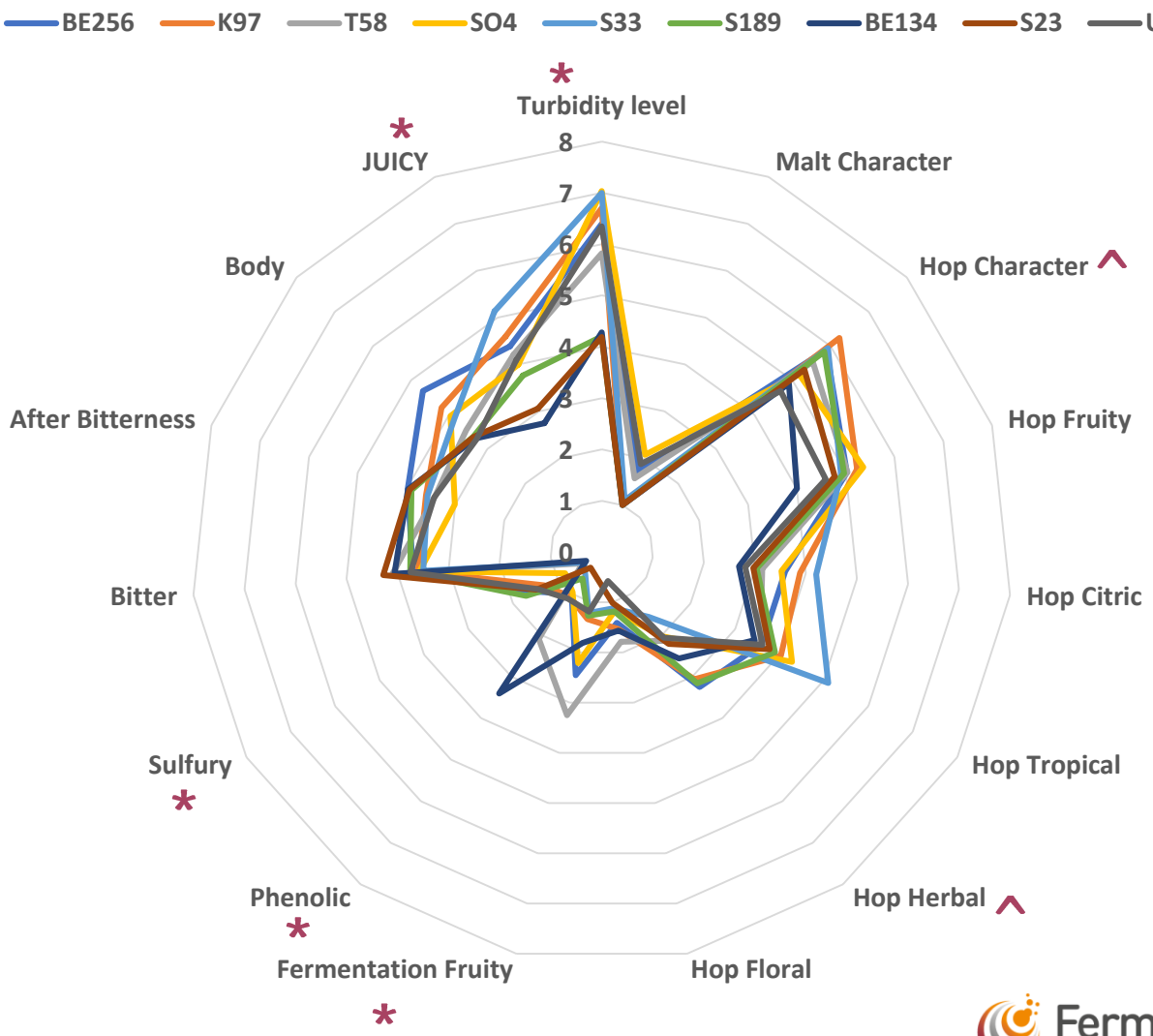
NEIPA SENSORY CHARACTERISTICS

# ALL STRAINS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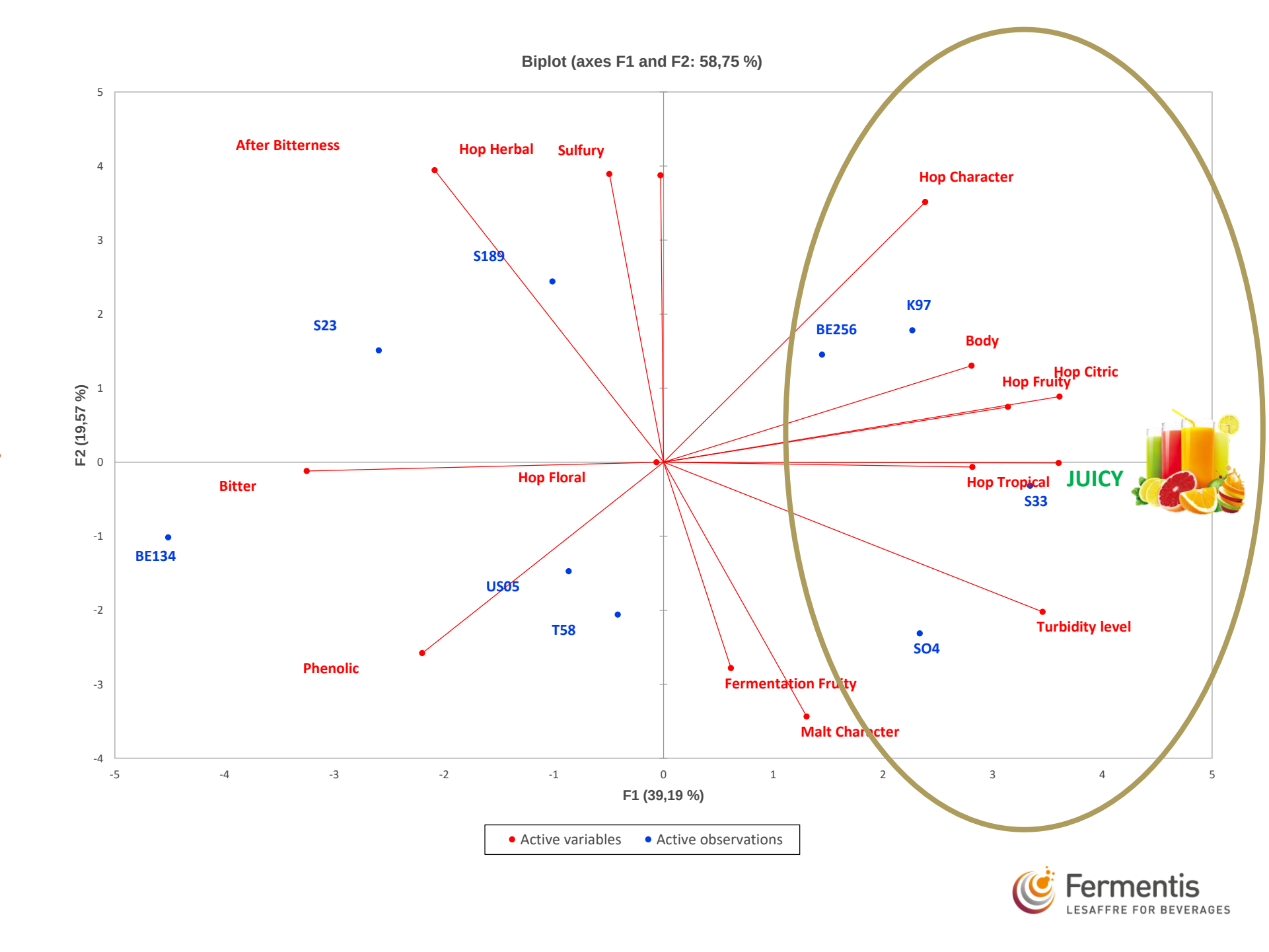
Biplot (axes F1 and F2: 58,75 %)
F2 (19,57 %)
F1 (39,19 %)
After Bitterness
Hop Herbal
Sulfury
Hop Character
S189
K97
S23
BE256
Body
Hop Citric
Hop Fruity
Bitter
Hop Floral
Hop Tropical
JUICY
S33
BE134
US05
T58
Turbidity level
SO4
Phenolic
Fermentation Fruity
Malt Character
Active variables
Active observations
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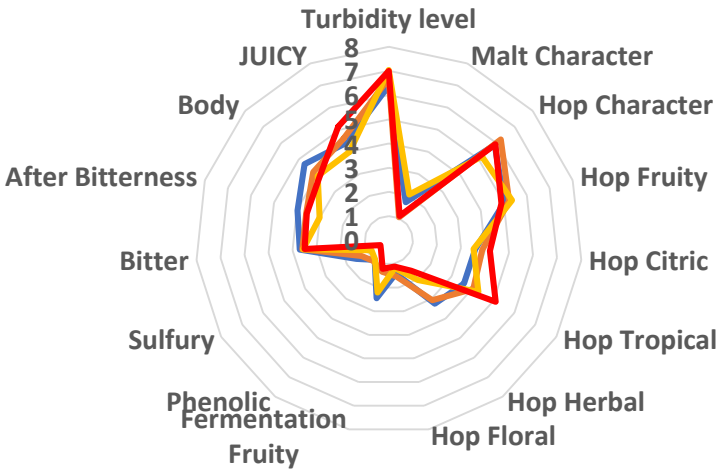
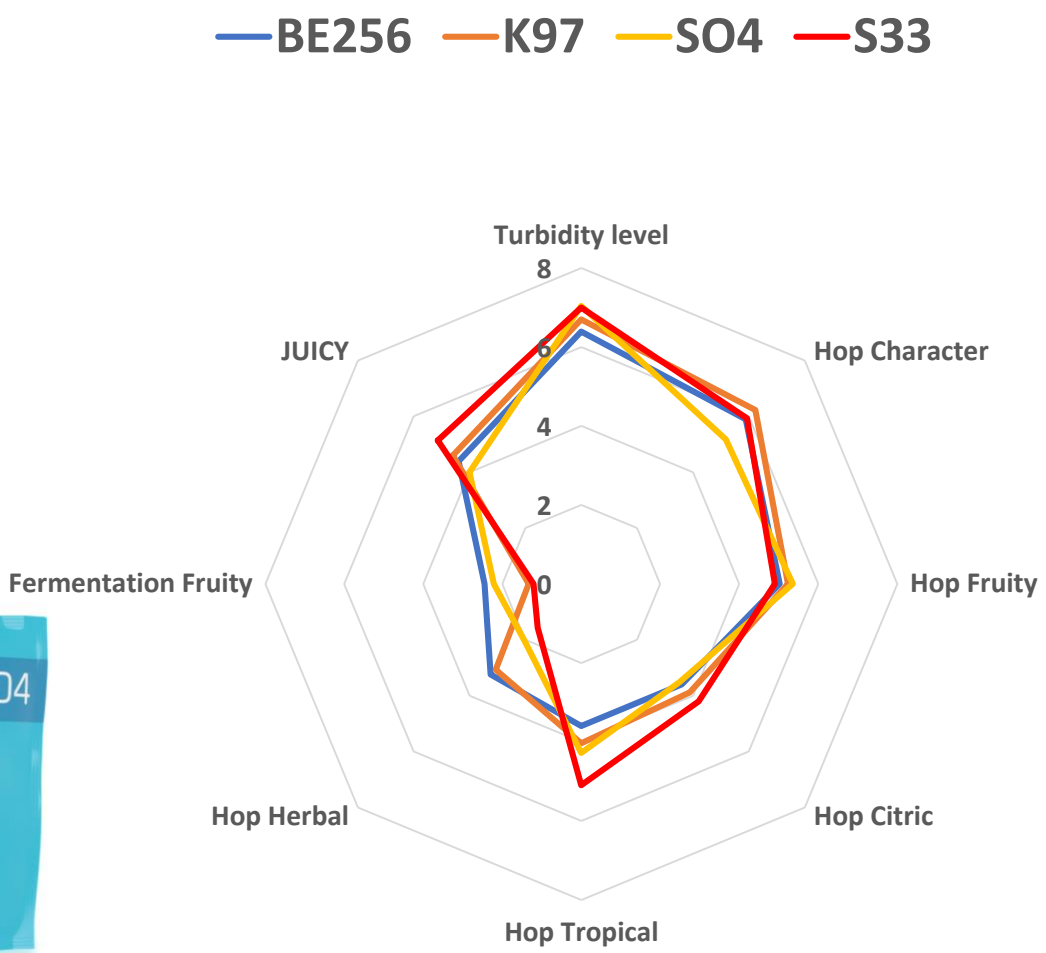
NEIPA SELECTED YEASTS

# SENSORY CHARACTERISTICS








**The choice is yours!**

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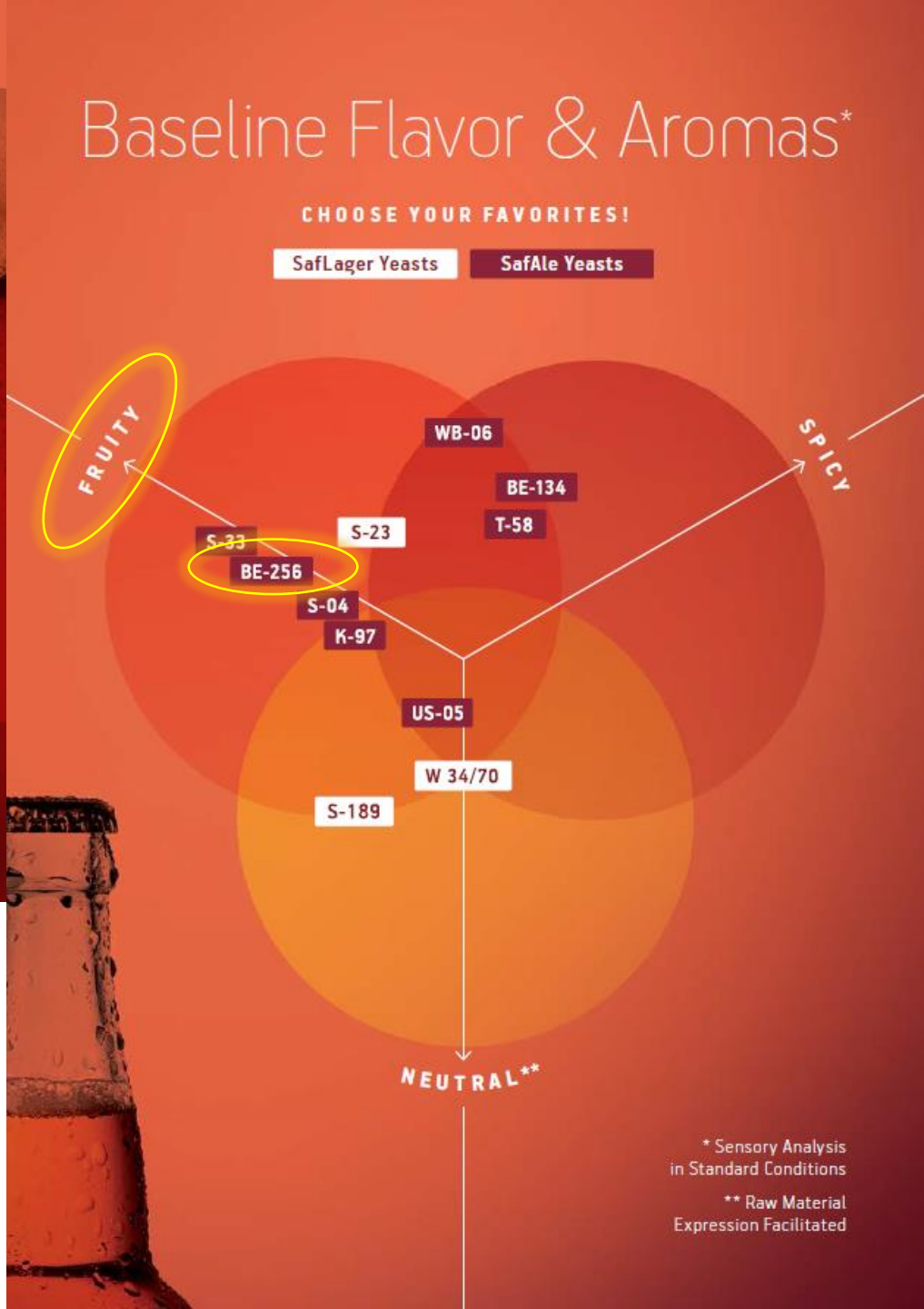
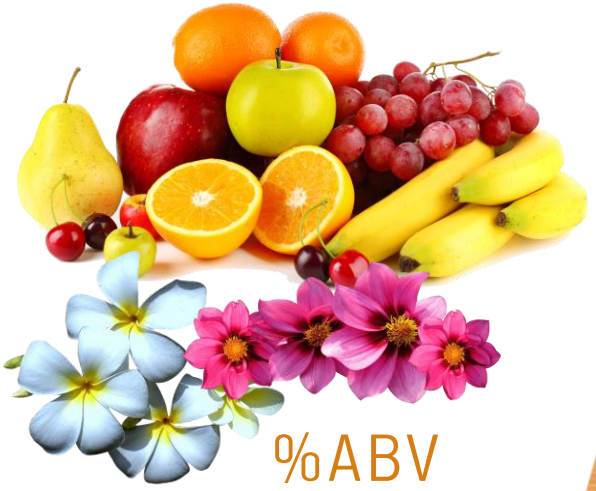



# Safale™ BE-256

# Special and Strong Ales



%ABV


Special and Strong Ales tend to be perfumy, estery (fruity / floral), may have slight yeasty character and, depending on the style, presenting as well malt / hop aromatics

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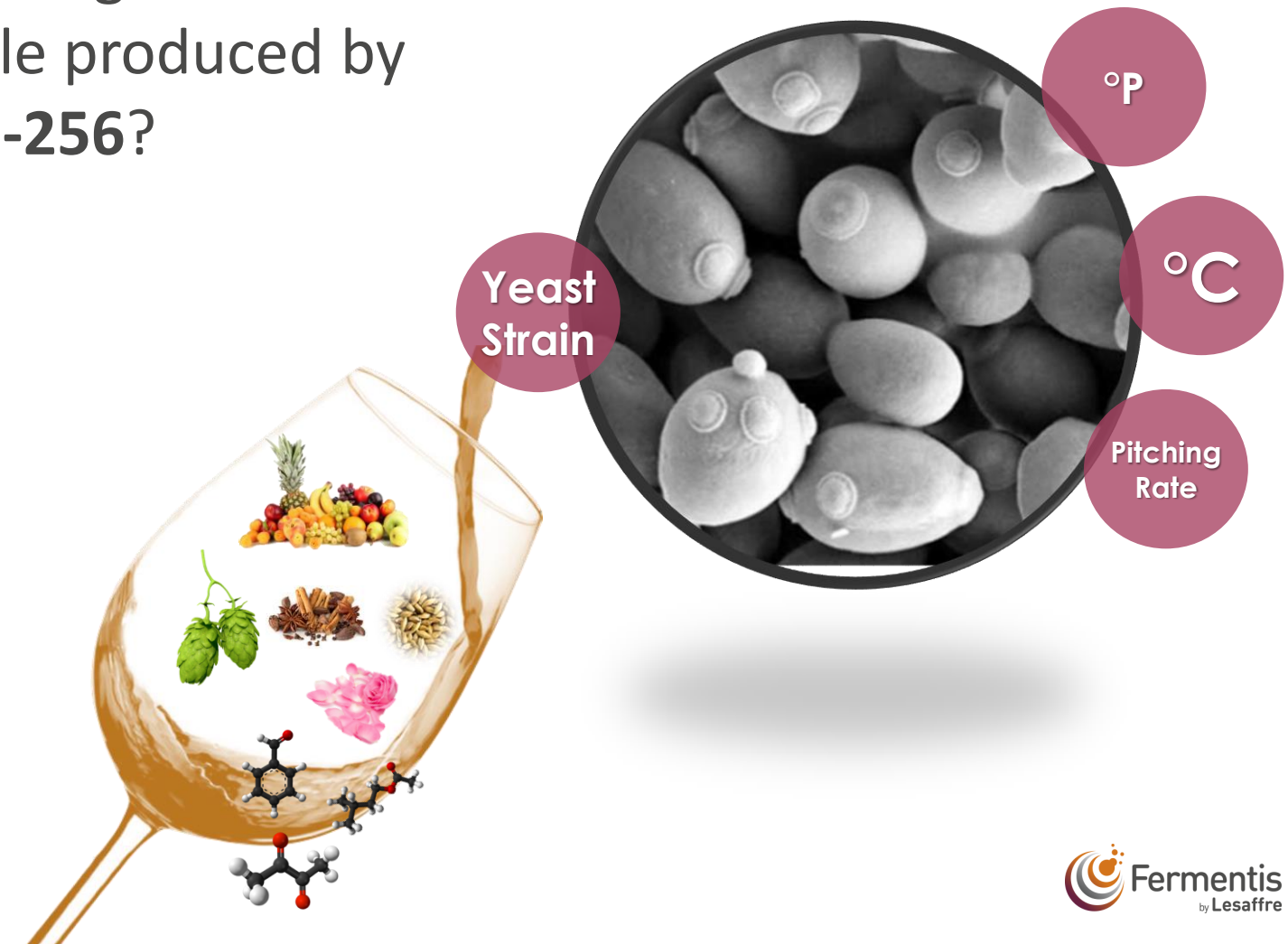
# How fermentation parameters might affect e.g. the **FRUITY** flavor profile produced by **Safale™ BE-256**?

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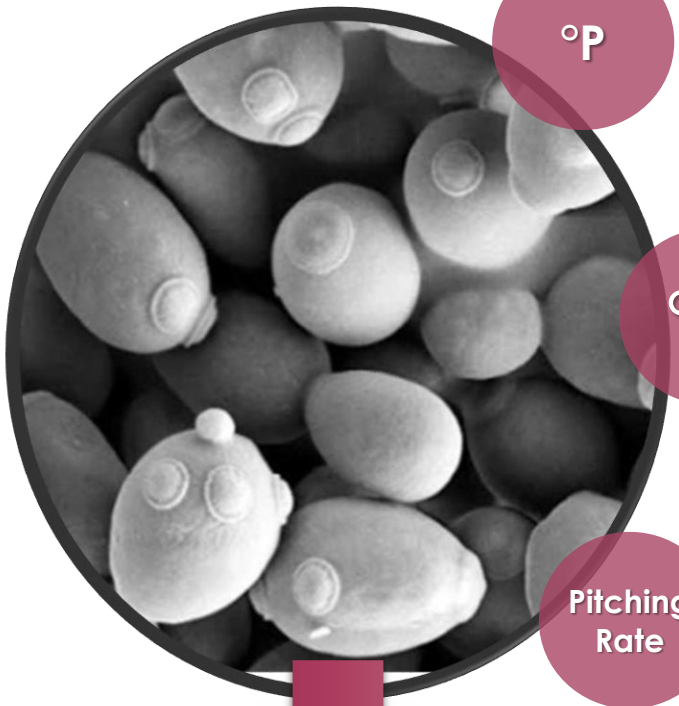
SAFALE™ BE-256



°P
- 12°P
- 16°P
- 20°P

°C
- 12°C
- 16°C
- 20°C
- 24°C

Pitching Rate
- 25G/HL
- 50G/HL
- 100G/HL

# PROTOCOLS

- All malt wort (pils)
- 28 EBU
- Direct pitching

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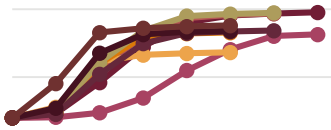
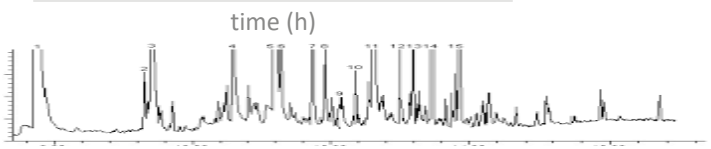
Fermentation Performance



Volatiles




Sensory Analysis

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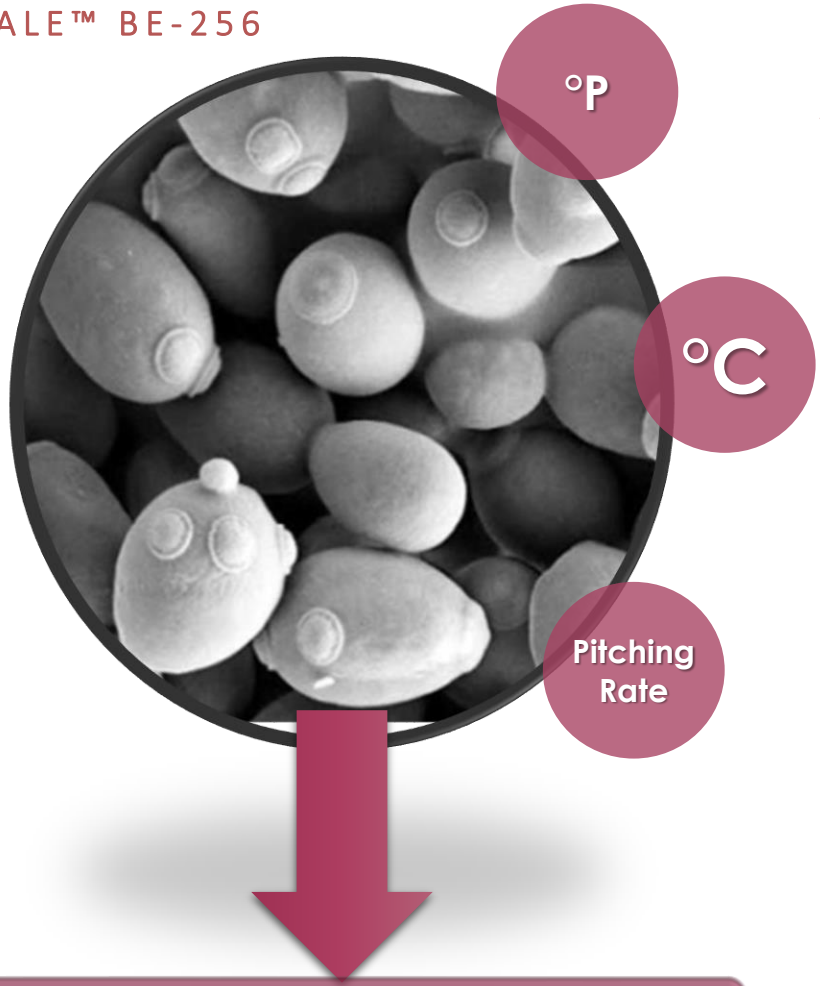


Fermentation Performance

Volatiles

Sensory Analysis

# STUDIED CONDITIONS (14)

| BE256 | Scale | Condition | Density (°P) | Temperature (°C) | Pitching rate (g/hL) |
|---|---|---|---|---|---|
| 1 | Pilot | C1 | 16 | 12 | 50 |
| 2 | Pilot | C2 | 20 | 24 | 50 |
| 3 | Pilot | C3 | 20 | 24 | 100 |
| 4 | Pilot | C4 | 12 | 20 | 50 |
| 5 | Pilot | C5 | 16 | 20 | 50 |
| 6 | Pilot | C6 | 20 | 20 | 50 |
| 7 | Pilot | C7 | 16 | 20 | 25 |
| 8 | Pilot | C8 | 16 | 20 | 100 |
| 9 | Pilot | C9 | 12 | 20 | 100 |
| 10 | Pilot | C10 | 16 | 16 | 100 |
| 11 | Pilot | C11 | 12 | 12 | 25 |
| 12 | Pilot | C12 | 12 | 16 | 50 |
| 13 | Pilot | C13 | 20 | 16 | 25 |
| 14 | Pilot | C14 | 20 | 12 | 100 |

## PILOT TRIALS 50L

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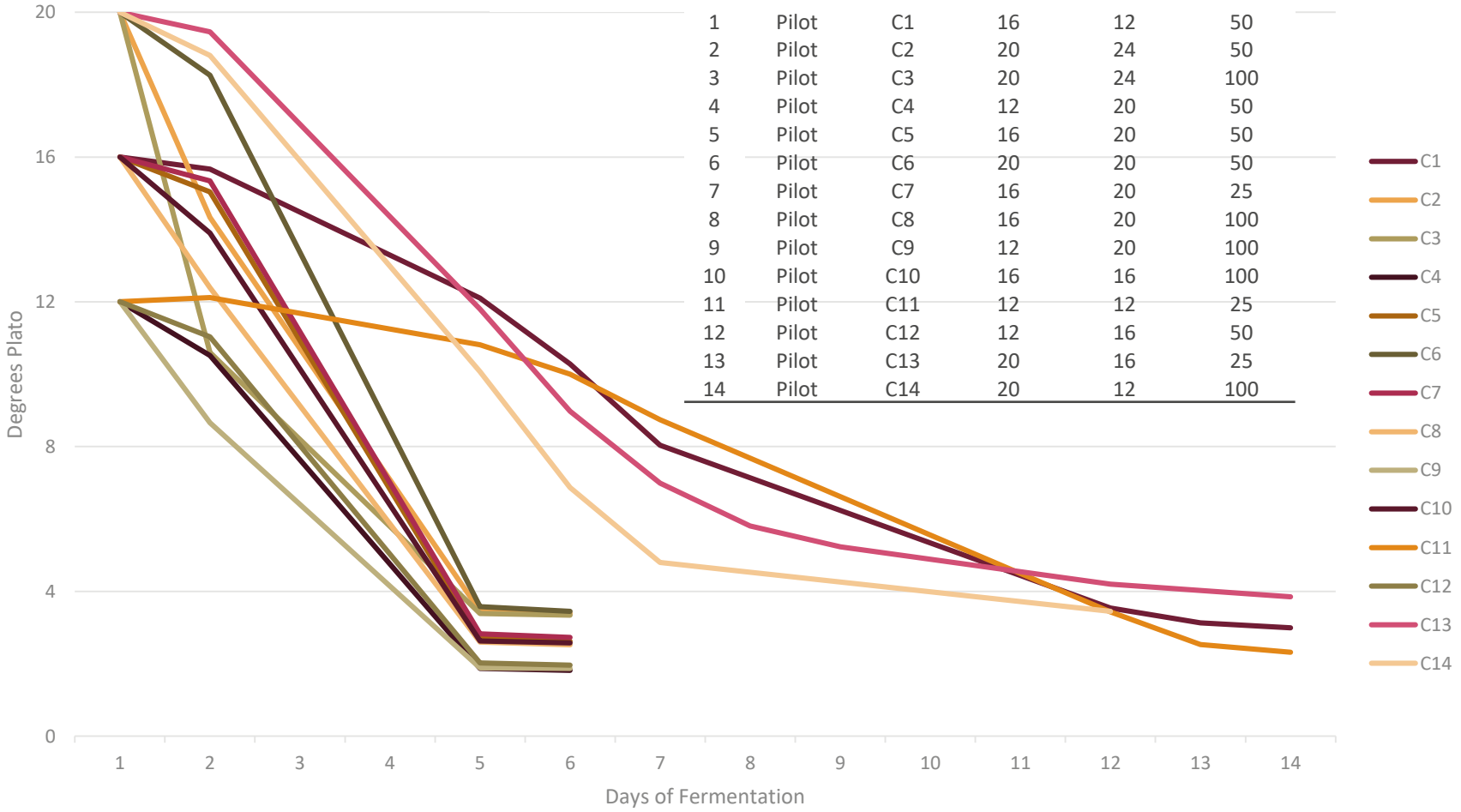
# FERMENTATION PERFORMANCE

| BE256 | Scale | Condition | Density (°P) | Temperature (°C) | Pitching rate (g/hL) |
|---|---|---|---|---|---|
| 1 | Pilot | C1 | 16 | 12 | 50 |
| 2 | Pilot | C2 | 20 | 24 | 50 |
| 3 | Pilot | C3 | 20 | 24 | 100 |
| 4 | Pilot | C4 | 12 | 20 | 50 |
| 5 | Pilot | C5 | 16 | 20 | 50 |
| 6 | Pilot | C6 | 20 | 20 | 50 |
| 7 | Pilot | C7 | 16 | 20 | 25 |
| 8 | Pilot | C8 | 16 | 20 | 100 |
| 9 | Pilot | C9 | 12 | 20 | 100 |
| 10 | Pilot | C10 | 16 | 16 | 100 |
| 11 | Pilot | C11 | 12 | 12 | 25 |
| 12 | Pilot | C12 | 12 | 16 | 50 |
| 13 | Pilot | C13 | 20 | 16 | 25 |
| 14 | Pilot | C14 | 20 | 12 | 100 |

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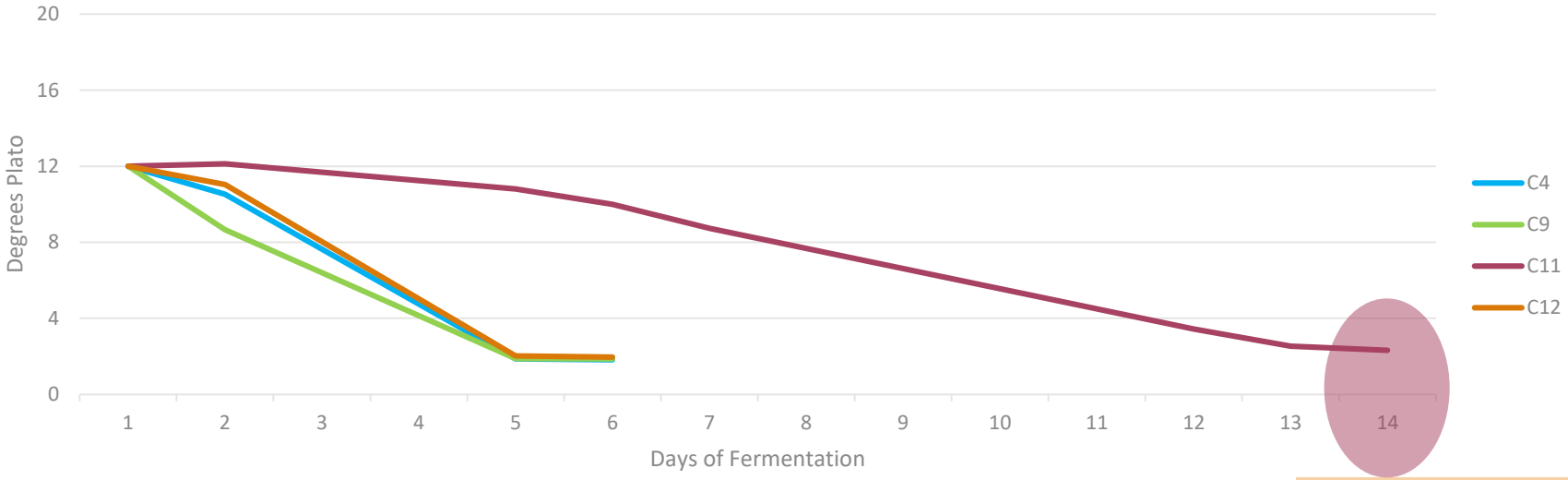
SAFALE™ BE-256 – PILOT TRAILS

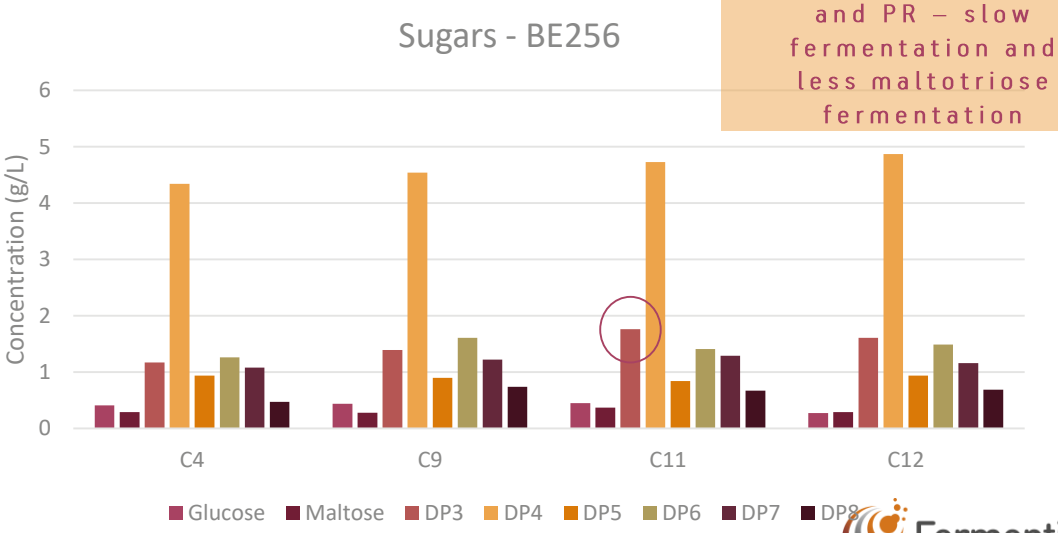
# FERMENTATION PERFORMANCE

**12ºP**




| BE256 | Scale | Condition | Density (°P) | Temperature (°C) | Pitching rate (g/hL) |
|---|---|---|---|---|---|
| 1 | Pilot | C1 | 16 | 12 | 50 |
| 2 | Pilot | C2 | 20 | 24 | 50 |
| 3 | Pilot | C3 | 20 | 24 | 100 |
| 4 | Pilot | C4 | 12 | 20 | 50 |
| 5 | Pilot | C5 | 16 | 20 | 50 |
| 6 | Pilot | C6 | 20 | 20 | 50 |
| 7 | Pilot | C7 | 16 | 20 | 25 |
| 8 | Pilot | C8 | 16 | 20 | 100 |
| 9 | Pilot | C9 | 12 | 20 | 100 |
| 10 | Pilot | C10 | 16 | 16 | 100 |
| 11 | Pilot | C11 | 12 | 12 | 25 |
| 12 | Pilot | C12 | 12 | 16 | 50 |
| 13 | Pilot | C13 | 20 | 16 | 25 |
| 14 | Pilot | C14 | 20 | 12 | 100 |

- Low temperatures and PR – slow fermentation and less maltotriose fermentation

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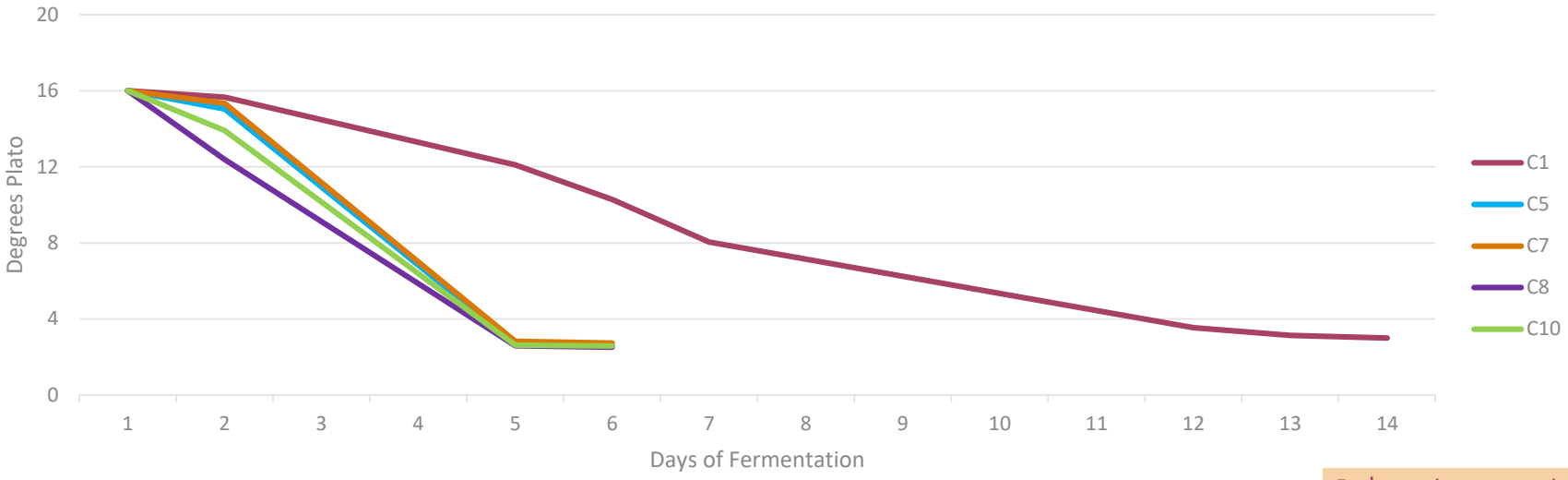
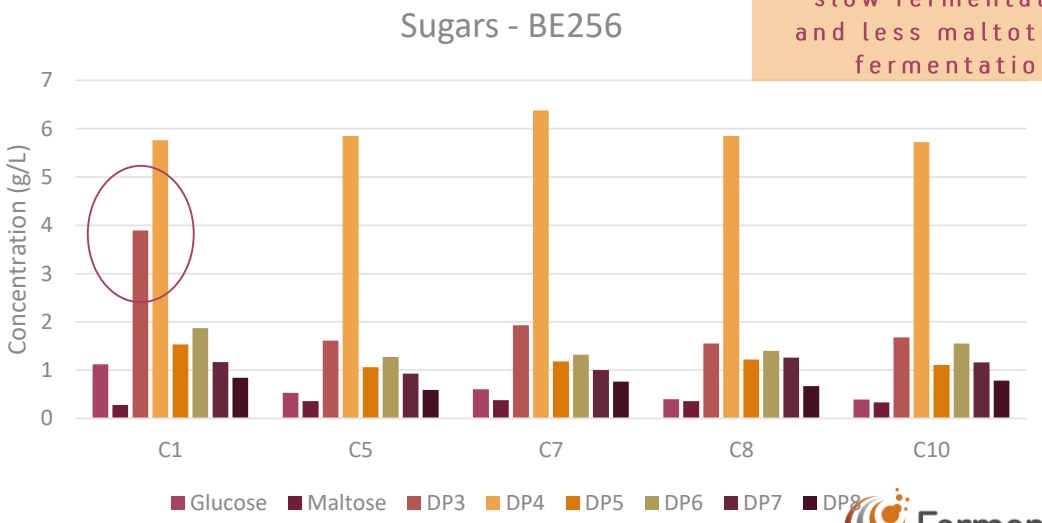
# FERMENTATION PERFORMANCE

16ºP




| BE256 | Scale | Condition | Density (°P) | Temperature (°C) | Pitching rate (g/hL) |
|---|---|---|---|---|---|
| 1 | Pilot | C1 | 16 | 12 | 50 |
| 2 | Pilot | C2 | 20 | 24 | 50 |
| 3 | Pilot | C3 | 20 | 24 | 100 |
| 4 | Pilot | C4 | 12 | 20 | 50 |
| 5 | Pilot | C5 | 16 | 20 | 50 |
| 6 | Pilot | C6 | 20 | 20 | 50 |
| 7 | Pilot | C7 | 16 | 20 | 25 |
| 8 | Pilot | C8 | 16 | 20 | 100 |
| 9 | Pilot | C9 | 12 | 20 | 100 |
| 10 | Pilot | C10 | 16 | 16 | 100 |
| 11 | Pilot | C11 | 12 | 12 | 25 |
| 12 | Pilot | C12 | 12 | 16 | 50 |
| 13 | Pilot | C13 | 20 | 16 | 25 |
| 14 | Pilot | C14 | 20 | 12 | 100 |

- Low temperatures – slow fermentation and less maltotriose fermentation

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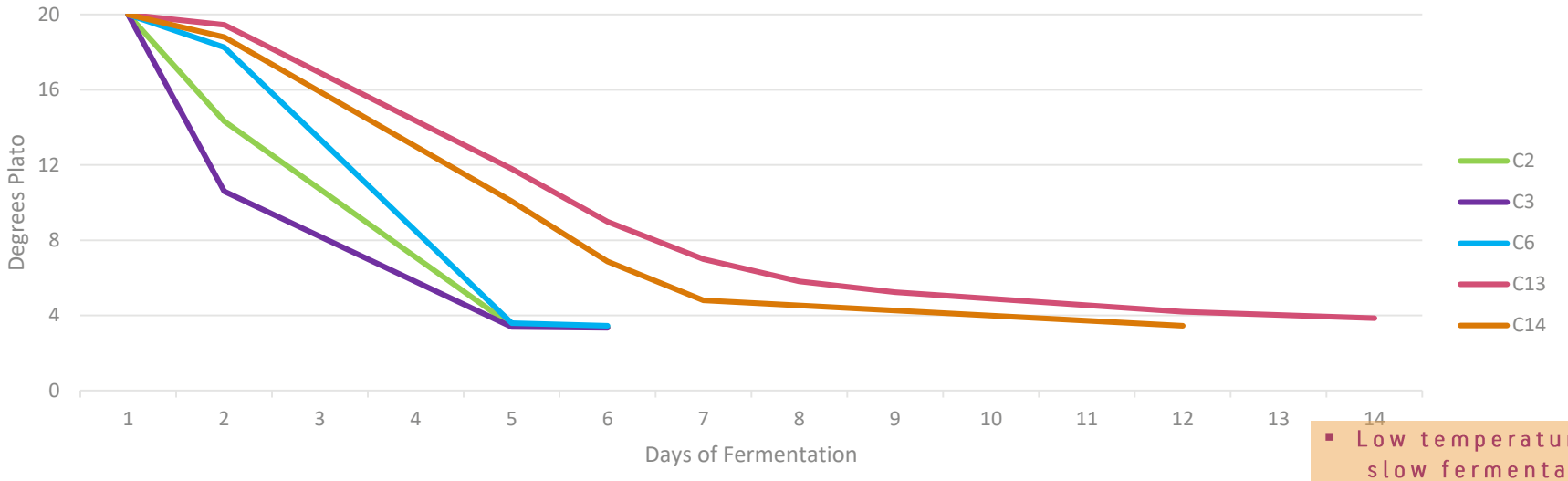
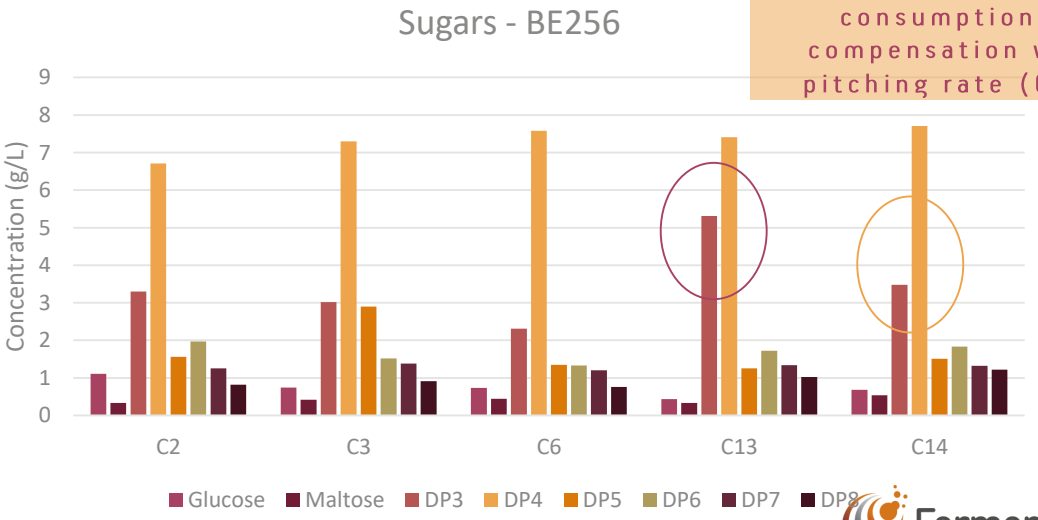
# FERMENTATION PERFORMANCE

**20ºP**




| BE256 | Scale | Condition | Density (°P) | Temperature (°C) | Pitching rate (g/hL) |
|---|---|---|---|---|---|
| 1 | Pilot | C1 | 16 | 12 | 50 |
| 2 | Pilot | C2 | 20 | 24 | 50 |
| 3 | Pilot | C3 | 20 | 24 | 100 |
| 4 | Pilot | C4 | 12 | 20 | 50 |
| 5 | Pilot | C5 | 16 | 20 | 50 |
| 6 | Pilot | C6 | 20 | 20 | 50 |
| 7 | Pilot | C7 | 16 | 20 | 25 |
| 8 | Pilot | C8 | 16 | 20 | 100 |
| 9 | Pilot | C9 | 12 | 20 | 100 |
| 10 | Pilot | C10 | 16 | 16 | 100 |
| 11 | Pilot | C11 | 12 | 12 | 25 |
| 12 | Pilot | C12 | 12 | 16 | 50 |
| 13 | Pilot | C13 | 20 | 16 | 25 |
| 14 | Pilot | C14 | 20 | 12 | 100 |

- Low temperatures – slow fermentation and less maltotriose consumption – compensation with pitching rate (C14)

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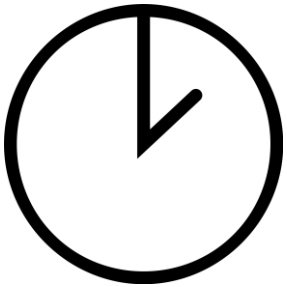
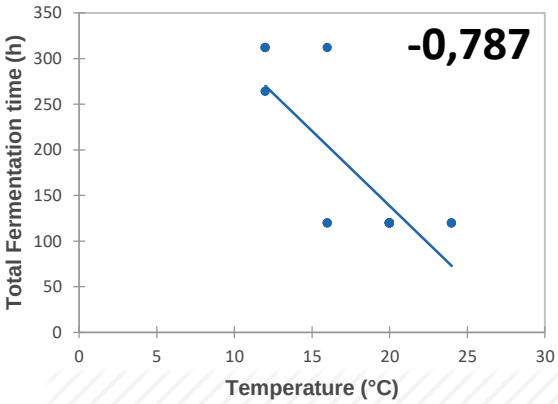
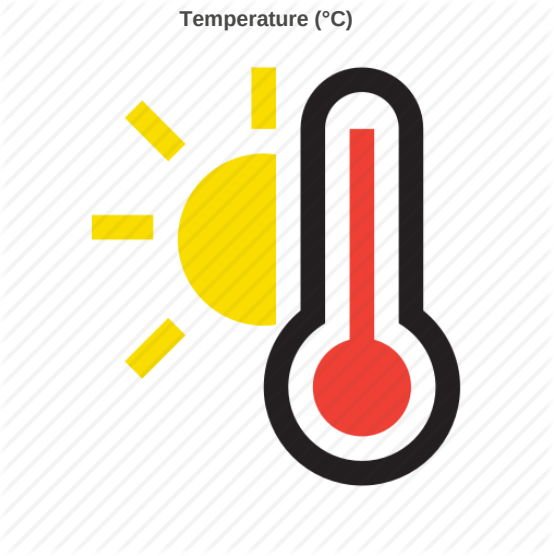
# FERMENTATION PERFORMANCE

✓ **Inverse correlation: If temperature increases, Fermentation time decreases**





Correlation matrix (Pearson):

| Variables | Density (°P) | Temperature (°C) | Pitching rate (g/hL) | Total Fermentation time (h) |
|---|---|---|---|---|
| Density (°P) | **1** | 0,228 | 0,114 | 0,101 |
| Temperature (°C) | 0,228 | **1** | 0,154 | **-0,787** |
| Pitching rate (g/hL) | 0,114 | 0,154 | **1** | -0,336 |
| Total Fermentation time (h) | 0,101 | **-0,787** | -0,336 | **1** |

*Values in bold are different from 0 with a significance level alpha=0,05*

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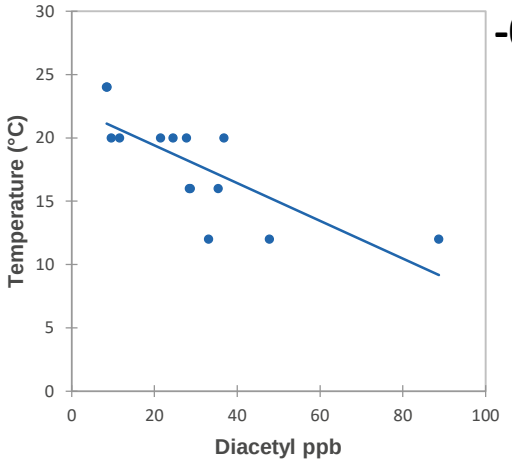
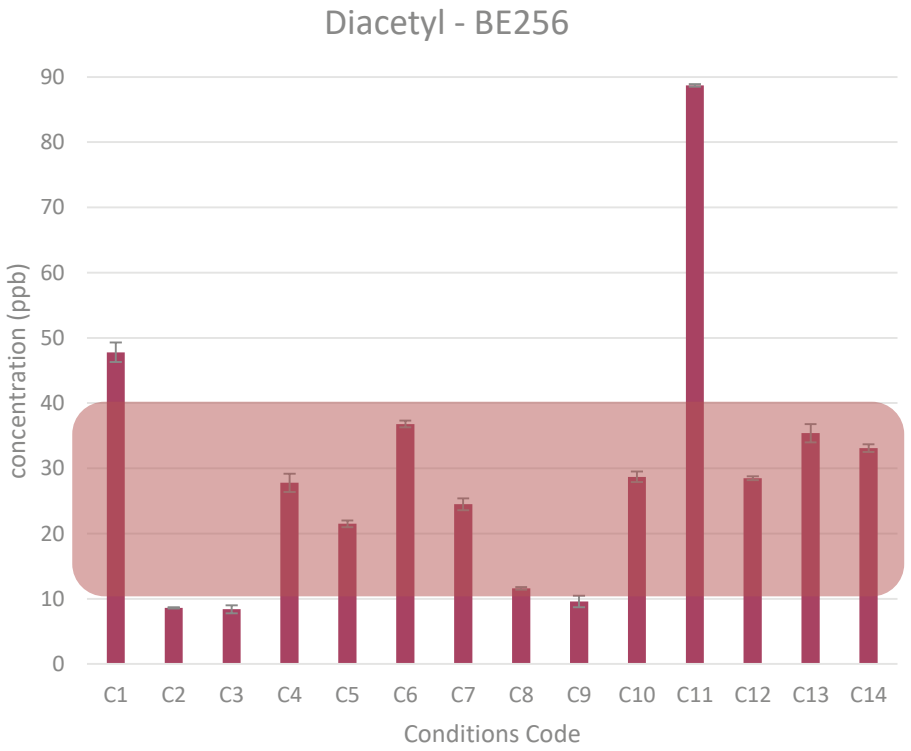
# DIACETYL PRODUCTION




**-0,759**

| BE256 | Scale | Condition | Density (°P) | Temperature (°C) | Pitching rate (g/hL) |
|---|---|---|---|---|---|
| 1 | Pilot | C1 | 16 | 12 | 50 |
| 2 | Pilot | C2 | 20 | 24 | 50 |
| 3 | Pilot | C3 | 20 | 24 | 100 |
| 4 | Pilot | C4 | 12 | 20 | 50 |
| 5 | Pilot | C5 | 16 | 20 | 50 |
| 6 | Pilot | C6 | 20 | 20 | 50 |
| 7 | Pilot | C7 | 16 | 20 | 25 |
| 8 | Pilot | C8 | 16 | 20 | 100 |
| 9 | Pilot | C9 | 12 | 20 | 100 |
| 10 | Pilot | C10 | 16 | 16 | 100 |
| 11 | Pilot | C11 | 12 | 12 | 25 |
| 12 | Pilot | C12 | 12 | 16 | 50 |
| 13 | Pilot | C13 | 20 | 16 | 25 |
| 14 | Pilot | C14 | 20 | 12 | 100 |




✓ If temperature of fermentation increases, Diacetyl concentration decreases (compensate with higher pitching C14 vs C11)

Fermentis by Lesaffre

SUMMARY

# PILOT

Fermentation
Correlation
Data

| Variables | Temperature | Plato | Pitching rate (g / hL) |
|---|---|---|---|
| Temperature | **1** | 0,228 | 0,154 |
| Plato | 0,228 | **1** | 0,114 |
| Pitching rate (g / hL) | 0,154 | 0,114 | **1** |
| Total Fermentation time | **-0,787** | 0,101 | -0,336 |
| Alcohol | 0,187 | **0,988** | 0,147 |
| Alcohol | 0,237 | **0,793** | 0,327 |
| Density | 0,021 | **0,960** | -0,039 |
| Real Extract | 0,095 | **0,985** | 0,044 |
| App. Extract | 0,020 | **0,959** | -0,039 |
| Orig. Extract | 0,159 | **0,991** | 0,114 |
| Real Degree of Fermentation | 0,522 | -0,142 | **0,547** |
| App. Degree of Fermentation | 0,374 | **-0,552** | 0,410 |
| Calories | 0,157 | **0,990** | 0,113 |
| Glucose | 0,119 | **0,544** | -0,079 |
| Maltose | -0,083 | **0,606** | 0,243 |
| DP3 | -0,222 | **0,701** | -0,197 |
| DP4 | 0,129 | **0,970** | 0,072 |
| DP5 | 0,372 | **0,654** | 0,348 |
| DP6 | -0,233 | 0,425 | 0,161 |
| DP7 | -0,124 | 0,394 | 0,329 |
| DP8 | -0,308 | **0,695** | 0,246 |
| Diacetyl | **-0,759** | -0,275 | -0,517 |

*Values in bold are different from 0 with a significance level alpha=0,05*

**Temperature ↑**

- Fermentation time ↓
- Diacetyl levels ↓

**Plato ↑**

- Residual sugars ↑

**Pitching rate ↑**

- Real degree of fermentation ↑

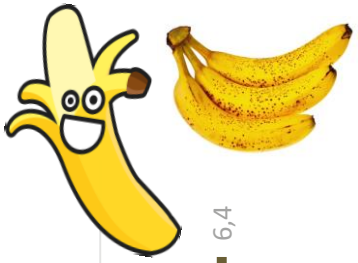
Fermentis by Lesaffre




$$\frac{\text{Concentration}}{\text{Threshold}} = \text{Flavour units}$$

Fermentis by Lesaffre

# VOLATILES - ODOUR UNITS



Presence of 4VG in minimum level

Important markers

Important in C13

Important in C5, C6, C7 and C13



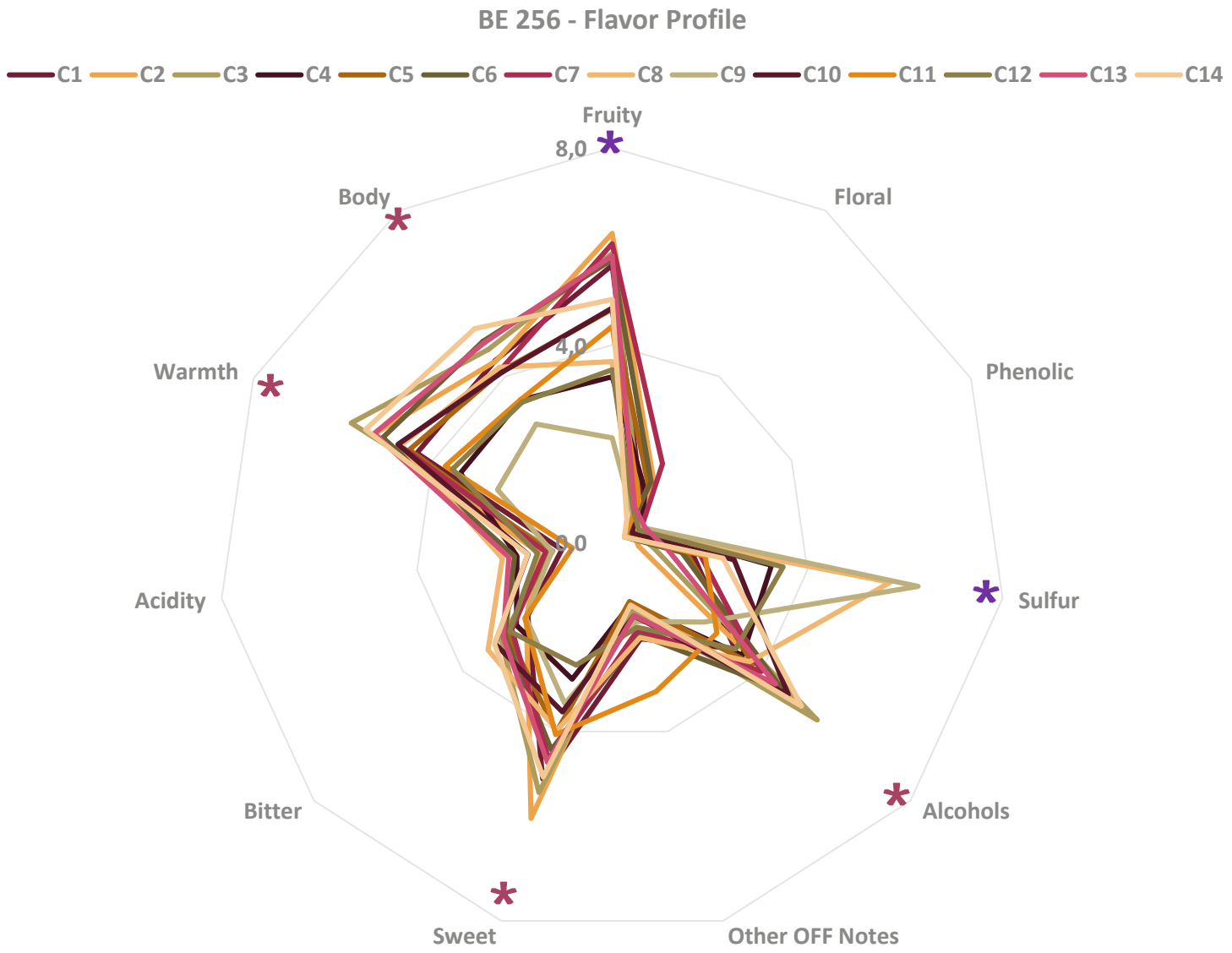

Fermentis by Lesaffre

# CORRELATION TABLE

| Variables | Temperature | Plato | Pitching rate (g / hL) | |
|---|---|---|---|---|
| Temperature | **1** | 0,228 | 0,154 | Conditions |
| Plato | 0,228 | **1** | 0,114 | |
| Pitching rate (g / hL) | 0,154 | 0,114 | **1** | |
| Fruity | 0,132 | **0,833** | -0,371 | Sensory |
| Floral | 0,384 | 0,092 | **-0,672** | |
| Phenolic | -0,192 | -0,193 | 0,116 | |
| Sulfur | -0,087 | **-0,594** | 0,491 | |
| Alcohols | 0,239 | **0,899** | 0,186 | |
| Other OFF Notes | -0,502 | -0,358 | -0,220 | |
| Sweet | 0,164 | **0,832** | -0,078 | |
| Bitter | 0,047 | 0,230 | 0,459 | |
| Acidity | 0,094 | 0,386 | 0,063 | |
| Warmth | 0,183 | **0,945** | 0,092 | |
| Body | -0,025 | **0,914** | 0,023 | |
| Diacetyl | **-0,759** | -0,275 | -0,517 | Volatiles |
| 4-VG | 0,191 | **0,780** | 0,164 | |
| n-propanol | 0,452 | **0,897** | 0,308 | |
| Ethyl-acetate | 0,318 | **0,952** | -0,105 | |
| Iso-butanol | **0,808** | 0,413 | **0,622** | |
| 2-methyl-butanol | **0,683** | **0,777** | 0,351 | |
| 3-methyl-butanol | **0,701** | **0,645** | **0,585** | |
| Isobutyl-acetate | **0,571** | **0,867** | 0,185 | |
| Ethyl-butanoate | -0,238 | **0,770** | -0,336 | |
| Isoamyl-acetate | 0,390 | **0,920** | -0,053 | |
| Ethyl-hexanoate | -0,001 | **0,645** | -0,503 | |
| Phenylethyl-alcohol | **0,742** | 0,008 | **0,618** | |
| Ethyl-octanoate | 0,419 | **0,861** | -0,209 | |
| Phenylethyl-acetate | **0,825** | 0,401 | 0,328 | |
| Ethyl-decanoate | **0,712** | **0,626** | 0,036 | |

*Values in bold are different from 0 with a significance level alpha=0,05*

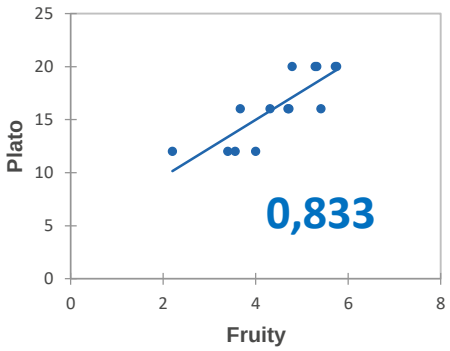
Fermentis by Lesaffre

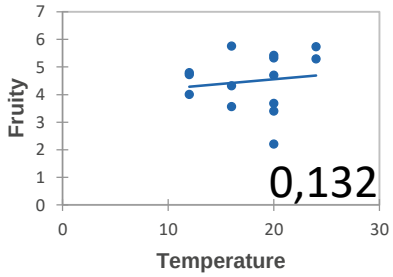


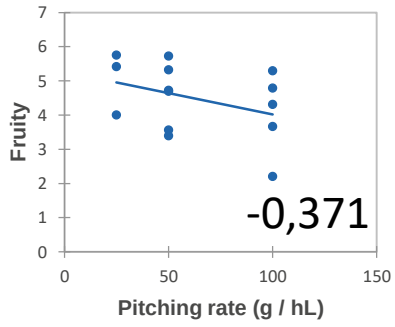

*p<0,001

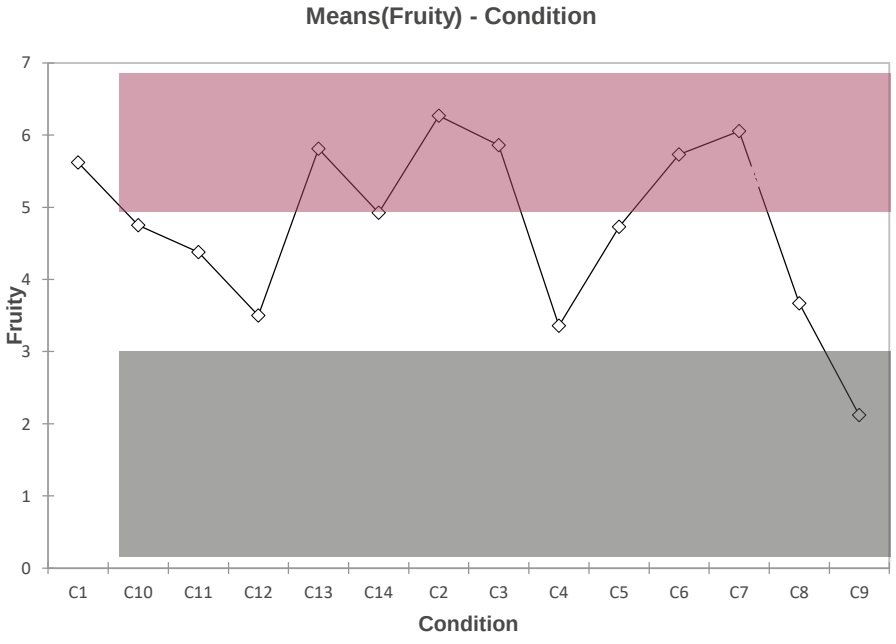
Fermentis by Lesaffre

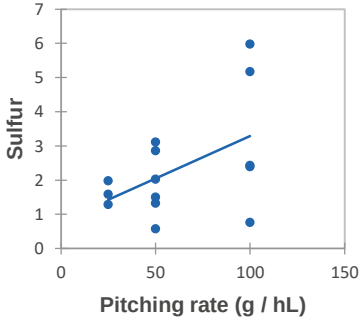
| BE256 | Scale | Condition | Density (°P) | Temperature (°C) | Pitching rate (g/hL) |
|---|---|---|---|---|---|
| 1 | Pilot | C1 | 16 | 12 | 50 |
| 2 | Pilot | C2 | 20 | 24 | 50 |
| 3 | Pilot | C3 | 20 | 24 | 100 |
| 4 | Pilot | C4 | 12 | 20 | 50 |
| 5 | Pilot | C5 | 16 | 20 | 50 |
| 6 | Pilot | C6 | 20 | 20 | 50 |
| 7 | Pilot | C7 | 16 | 20 | 25 |
| 8 | Pilot | C8 | 16 | 20 | 100 |
| 9 | Pilot | C9 | 12 | 20 | 100 |
| 10 | Pilot | C10 | 16 | 16 | 100 |
| 11 | Pilot | C11 | 12 | 12 | 25 |
| 12 | Pilot | C12 | 12 | 16 | 50 |
| 13 | Pilot | C13 | 20 | 16 | 25 |
| 14 | Pilot | C14 | 20 | 12 | 100 |

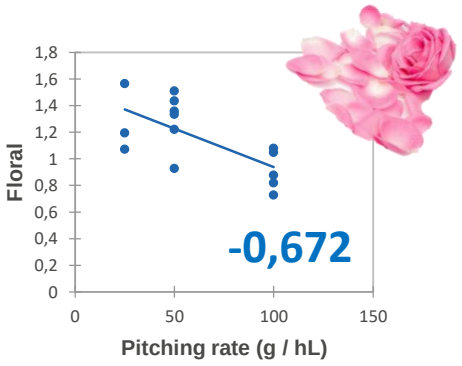



Fermentis by Lesaffre

SUMMARY
PILOT
All data

Gravity ↑

Fusel alcohols -> along with sensory alcohols and warmth perception

Esters – along with Fruity perception

Residual Sugars – along with sweetness perception and body

Sulfury perception ↓

Temperature ↑

Fermentation time ↓

Diacetyl levels ↓

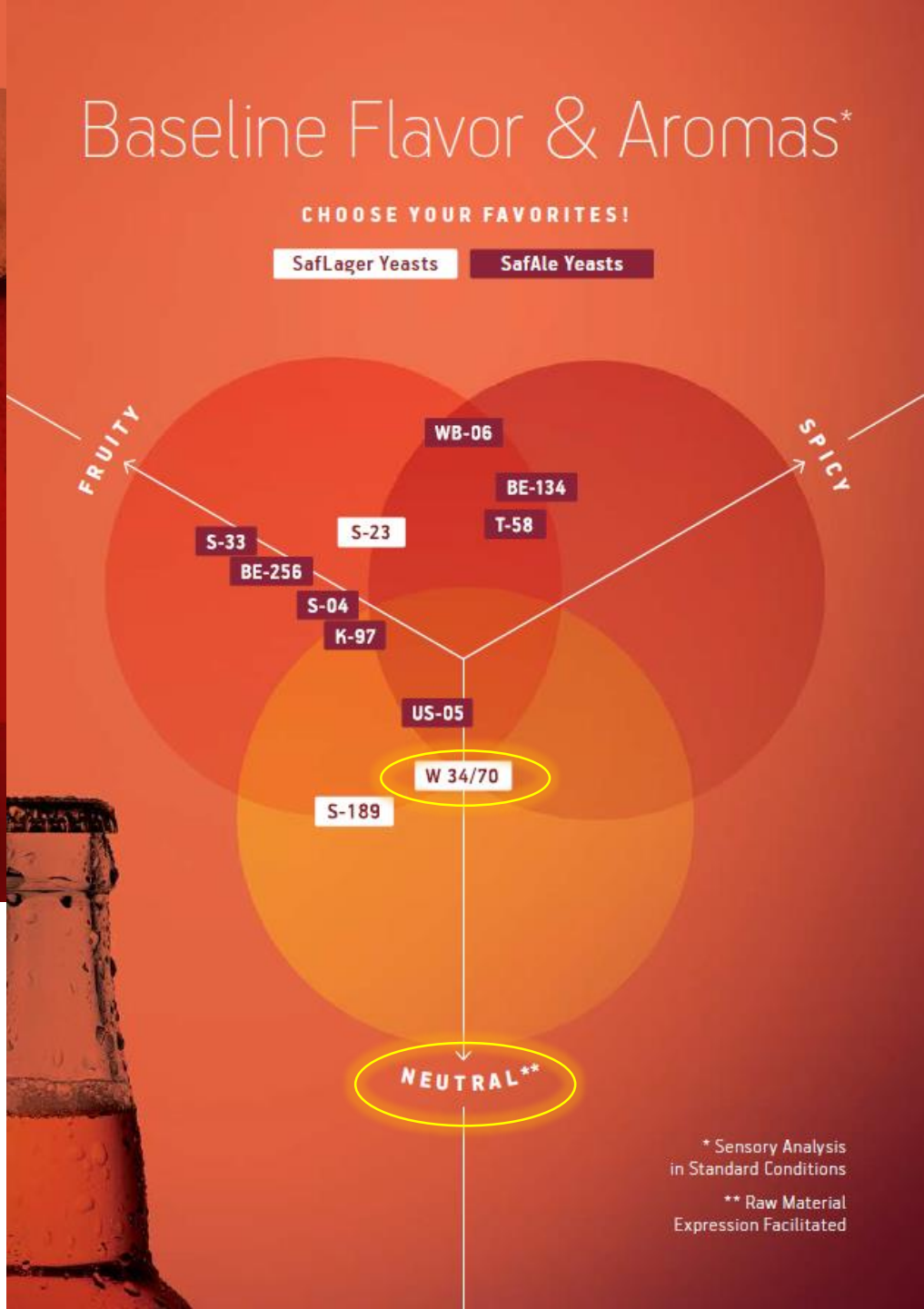
Specific fusel alcohol and esters (phenyl ethyl alcohol*) (isobutyl acetate, phenyl ethyl acetate and ethyl decanoate) ↑

Pitching rate ↑

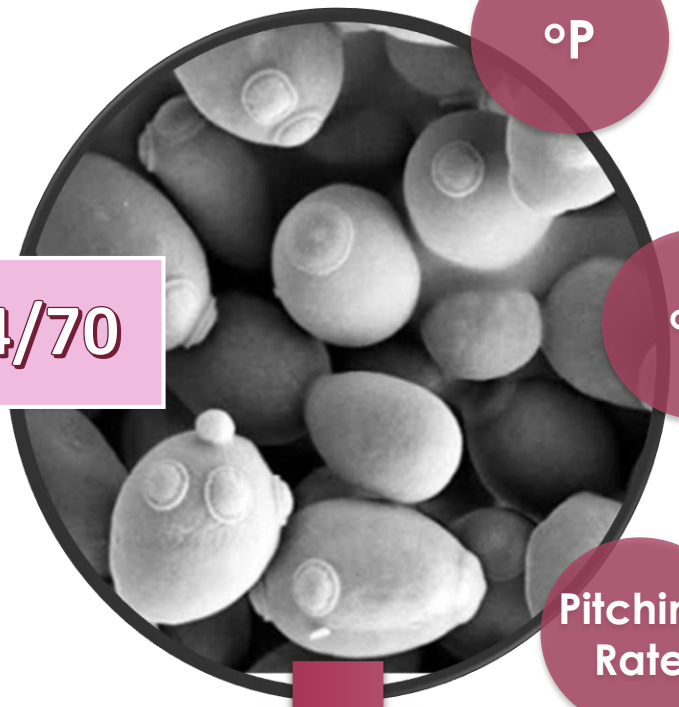
Real degree of fermentation ↑

floral perception ↓


Fermentis by Lesaffre


# Salager™ W34/70




## STUDIED CONDITIONS (14)

| Condition code | Density (ºP) | Temperature (ºC) | Pitching Rate (g/hL) |
|---|---|---|---|
| C1 | 16 | 12 | 50 |
| C2 | 20 | 16 | 100 |
| C3 | 20 | 16 | 200 |
| C4 | 12 | 20 | 50 |
| C5 | 16 | 20 | 50 |
| C6 | 20 | 20 | 50 |
| C7 | 16 | 20 | 25 |
| C8 | 16 | 20 | 100 |
| C9 | 16 | 16 | 100 |
| C10 | 12 | 20 | 100 |
| C11 | 12 | 12 | 25 |
| C12 | 12 | 16 | 50 |
| C13 | 20 | 16 | 25 |
| C14 | 20 | 12 | 100 |

Fermentation Performance

Volatiles Profile

Sensory Analysis

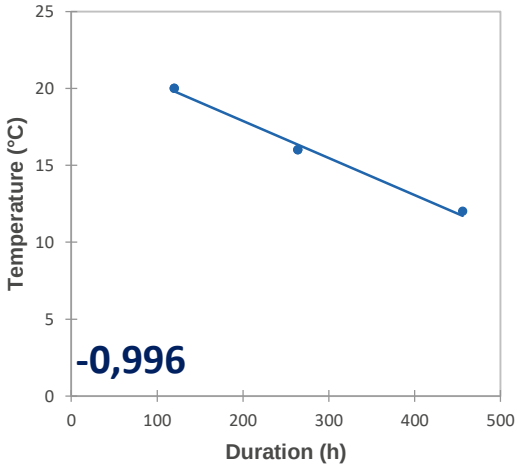
## PILOT TRIALS 50L ✓

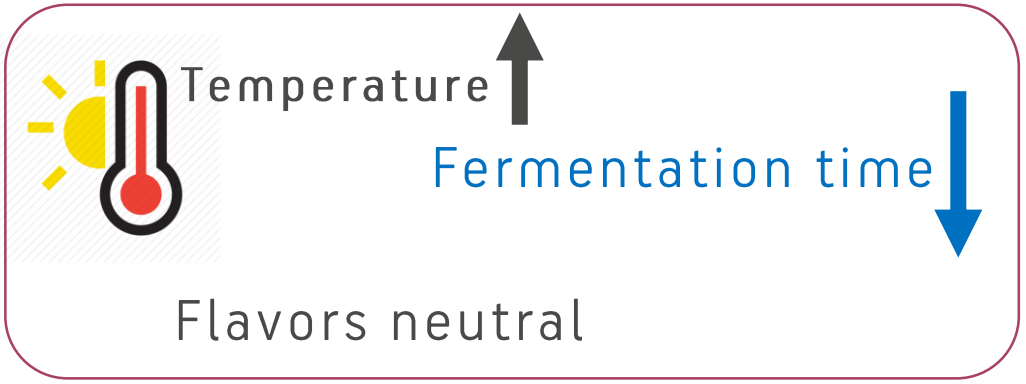
Fermentis by Lesaffre

# At 100g/hL:

| Variables | Density (°P) | Temperature (°C) |
|---|---|---|
| Density (°P) | **1** | -0,786 |
| Temperature (°C) | -0,786 | **1** |
| Duration (h) | 0,768 | **-0,996** |
| Ethanol (ABV) | **0,998** | -0,795 |
| n-propanol | 0,023 | -0,603 |
| Isobutanol | 0,630 | -0,054 |
| Amyl alcohol | 0,708 | -0,205 |
| Isoamyl alcohol | 0,694 | -0,258 |
| Phenyl ethyl alcohol | -0,336 | 0,670 |
| Ethyl acetate | 0,753 | -0,401 |
| Isoamyl acetate | 0,859 | -0,541 |
| Ethyl butyrate | **0,994** | -0,758 |
| Ethyl hexanoate | 0,838 | -0,643 |
| Ethyl octanoate | 0,600 | -0,388 |
| Phenyl ethyl acetate | 0,276 | 0,156 |
| Ethyl decanoate | 0,301 | 0,049 |
| 4VG | 0,730 | -0,511 |
| Fruity | 0,485 | -0,823 |
| Floral | -0,460 | 0,064 |
| Phenolic | -0,445 | -0,034 |
| Sulfur | 0,153 | -0,539 |
| Alcohols | 0,552 | -0,482 |
| Other OFF Notes | 0,537 | -0,207 |
| Sweet | **0,930** | -0,797 |
| Bitter | -0,232 | 0,330 |
| Acidity | -0,667 | **0,897** |
| Warmth | **0,983** | -0,859 |
| Body | 0,276 | -0,265 |

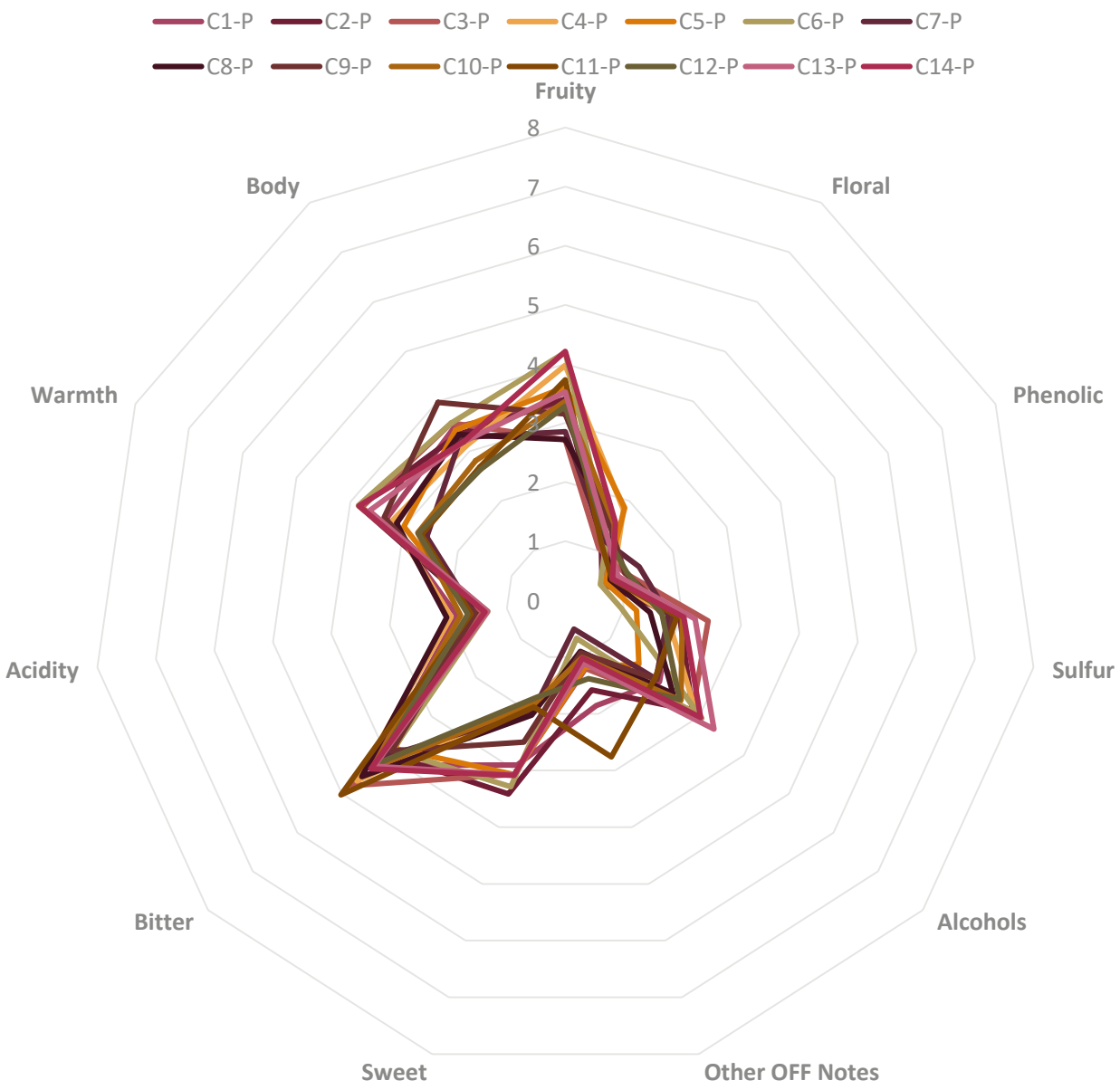
*Values in bold are different from 0 with a significance level alpha=0,05*




Fermentis by Lesaffre

| Conditions | Density (°P) | Temperature (°C) | Pitching rate (g/hL) |
|---|---|---|---|
| C1-P | 16 | 12 | 50 |
| C2-P | 20 | 16 | 100 |
| C3-P | 20 | 16 | 200 |
| C4-P | 12 | 20 | 50 |
| C5-P | 16 | 20 | 50 |
| C6-P | 20 | 20 | 50 |
| C7-P | 16 | 20 | 25 |
| C8-P | 16 | 20 | 100 |
| C9-P | 16 | 16 | 100 |
| C10-P | 12 | 20 | 100 |
| C11-P | 12 | 12 | 25 |
| C12-P | 12 | 16 | 50 |
| C13-P | 20 | 16 | 25 |
| C14-P | 20 | 12 | 100 |




Fermentis by Lesaffre

ACTIVE DRY YEASTS

# SafLager™ W-34/70

IDEAL FOR NEUTRAL LAGER BEER

E2U EASY USE by Fermentis

## CONCLUSIONS

- Relatively neutral
- Very robust and stable over many different conditions
- Ensures faster fermentation at higher temperatures, without affecting the flavor

Fermentis by Lesaffre

## SUMMARY

To create your own unique beer:

Select the strain that works best for you

NEIPA: **Safale™ S-33**, K-97 or S-04

Change basic fermentation parameters (gravity, temperature, pitching rate) to tweek the beer to your own liking

**Safale™ BE-256**

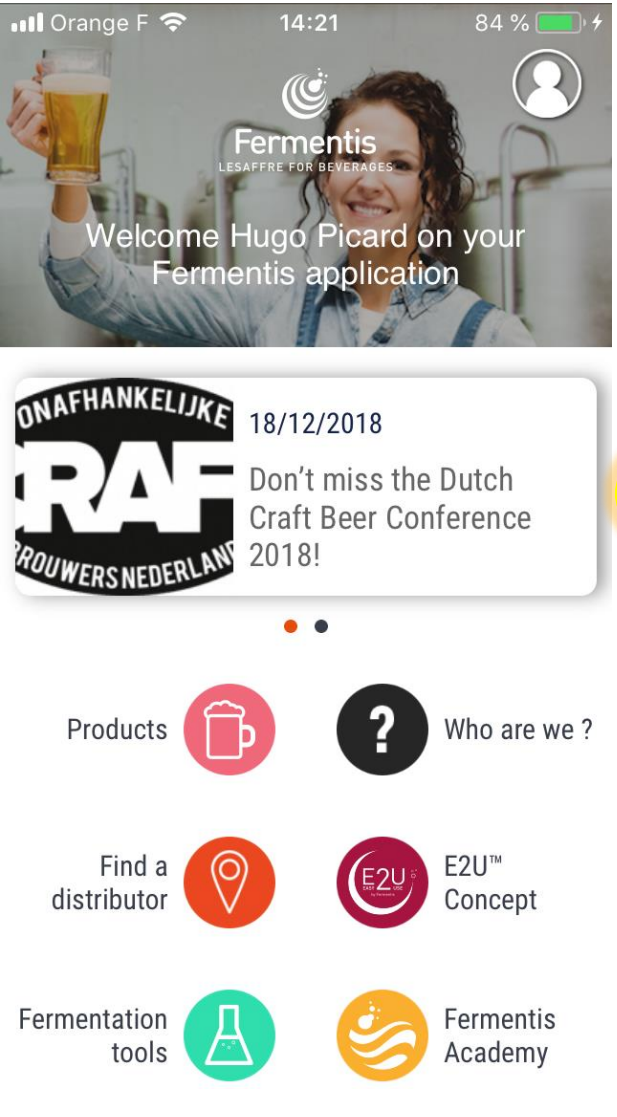
- changing parameters has a high impact

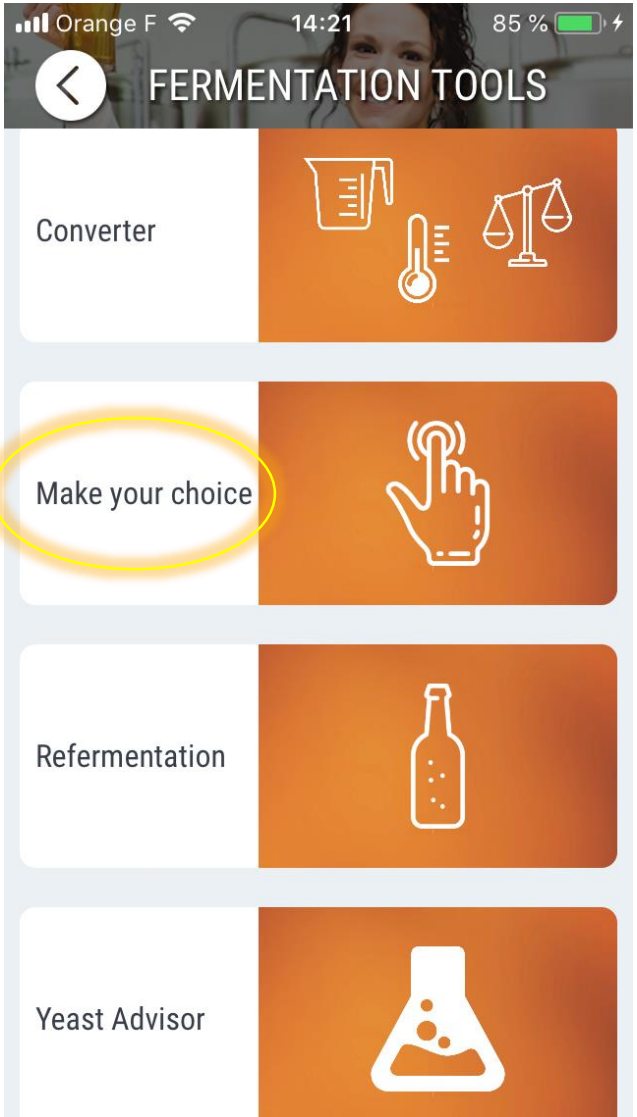
**Saflager ™ W34/70**

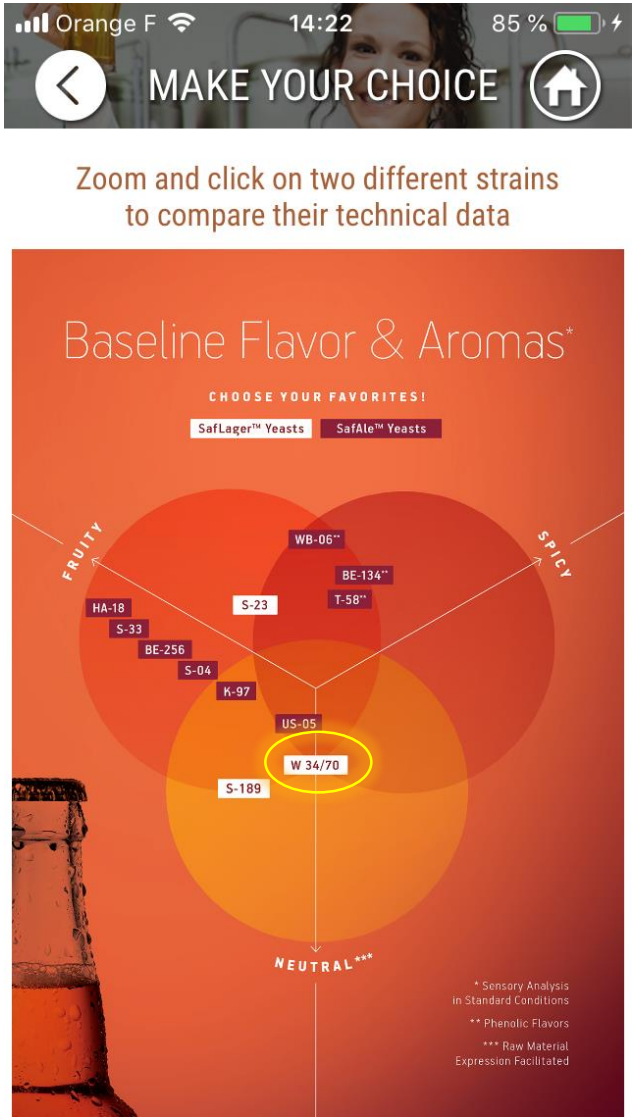
- changing parameters has a low impact
- neutral at higher temperatures!

Fermentis by Lesaffre

# CHECK THE FERMENTIS APP!



Thank you!

g.baart@fermentis.lesaffre.com

Fermentis.com

THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION

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