

Active Dry Yeast: And the World of Taste and Pleasure



THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION



FERMENTIS
ACADEMY



Fermentis
LESAFFRE FOR BEVERAGES

SUMMARY

1. Yeast and Flavour Diversity

2. Make your Choice with Safale™ BE-256

3. Make your Choice with Saflager™ W-34/70

4. Yeast – Hop interactions

- ADY selection for NEIPA
- ADY selection for Brut IPA
- ADY and Cascade Interaction

1. YEAST AND FLAVOUR DIVERSITY



THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION



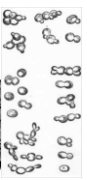
MARKET SELECTION



Its all about the consumer PLEASURE !



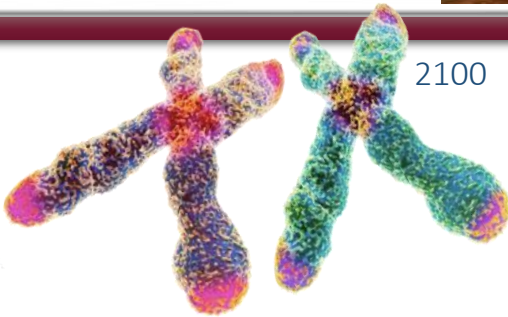
1900



2000



2100



Yeast is the main actor in flavour formation during fermentation...
But how big can the 'flavour role' of the yeasts be when process / parameters /
ingredients change?



Could the yeast be driven to produce specific flavors to enhance pleasure?



WHAT IS THE
BASELINE?

Flavour diversity?

The Baseline

- 15 °P wort (100% spring 2rows, 3 EBC)
- Bitterness: 25 IBU (iso-alpha extract)
- Pitching: 50g/hl
- Temperature : 23 °C
- Atmospheric pressure



FERMENTIS
ACADEMY



FERMENTIS

SafAle BE-256

DRY BREWING YEAST
 Lagerbeere, Weiss, unbrauner (E491).
 Packaged in a protective atmosphere.
 Store in a cool, dry place.
 For best before and date and batch number see on packaging. Manufactured in Belgium.
CHARACTERISTICS: yeast recommended to brew strong lagers known for their high alcohol content. It ferments very fast and reveals subtle and well-balanced esters.
 Sedimentation: very good. Final gravity: high. Temperature range: 12-20°C (53-67°F) ideally 15-20°C (59-69°F).
DOBAGE: 11.5 g in 20 to 30 litres.
PITCHING: Sprinkle into wort.
 NET WEIGHT: 11.5 g
 Fermentis
 LESAFFRE FOR BEVERAGES
 33159 200 1600
 33159 200 1600

Safale S-04
DRY ALE YEAST
 Lagerbeere, Weiss, unbrauner (E491).
 Packaged in a protective atmosphere.
 Store in a cool, dry place.
 For best before and date and batch number see on packaging. Manufactured in Belgium.
CHARACTERISTICS: English ale yeast for the production of a large range of ales. Pils fermentation. Sedimentation: low. Final gravity: medium. Temperature range: 12-20°C (53-67°F) ideally 15-20°C (59-69°F).
DOBAGE: 11.5 g in 20 to 30 litres.
PITCHING: Sprinkle into wort.
 NET WEIGHT: 11.5 g
 Fermentis
 LESAFFRE FOR BEVERAGES
 35946 1804 278
 35946 1804 278



Safale US-05
DRY ALE YEAST
 Lagerbeere, Weiss, unbrauner (E491).
 Packaged in a protective atmosphere.
 Store in a cool, dry place.
 For best before and date and batch number see on packaging. Manufactured in Belgium.
CHARACTERISTICS: American ale yeast produced and brewed best with strong, clean, high and pale. Sedimentation: medium. Final gravity: low to medium. Temperature range: 12-20°C (53-67°F) ideally 15-20°C (59-69°F).
DOBAGE: 11.5 g in 20 to 30 litres.
PITCHING: Sprinkle into wort.
 NET WEIGHT: 11.5 g
 Fermentis
 LESAFFRE FOR BEVERAGES
 33159 200 1600
 33159 200 1600

Safale K-97
DRY ALE YEAST
 Lagerbeere, Weiss, unbrauner (E491).
 Packaged in a protective atmosphere.
 Store in a cool, dry place.
 For best before and date and batch number see on packaging. Manufactured in Belgium.
CHARACTERISTICS: German ale yeast, selected for the Belgian type when being characterized by a good length on the glass. Sedimentation: low. Attenuation: high. Temperature range: 12-20°C (53-67°F) ideally 15-20°C (59-69°F).
DOBAGE: 11.5 g in 20 to 30 litres.
PITCHING: Sprinkle into wort.
 NET WEIGHT: 11.5 g
 Fermentis
 LESAFFRE FOR BEVERAGES
 36211 1100 045
 36211 1100 045

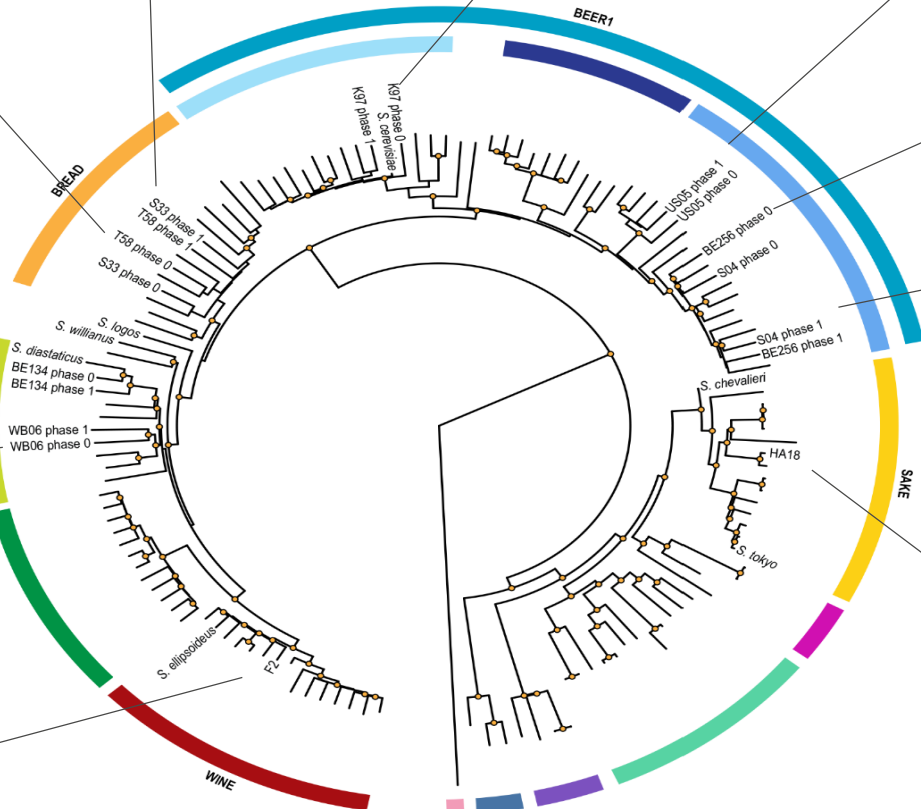
SafAle S-33
DRY BREWING YEAST
 Lagerbeere, Weiss, unbrauner (E491).
 Packaged in a protective atmosphere.
 Store in a cool, dry place.
 For best before and date and batch number see on packaging. Manufactured in Belgium.
CHARACTERISTICS: German wheat yeast, selected for the Belgian type when being characterized by a good length on the glass. Sedimentation: low. Attenuation: high. Temperature range: 12-20°C (53-67°F) ideally 15-20°C (59-69°F).
DOBAGE: 11.5 g in 20 to 30 litres.
PITCHING: Sprinkle into wort.
 NET WEIGHT: 11.5 g
 Fermentis
 LESAFFRE FOR BEVERAGES
 35946 1804 278
 35946 1804 278

SafAle T-58
DRY BREWING YEAST
 Lagerbeere, Weiss, unbrauner (E491).
 Packaged in a protective atmosphere.
 Store in a cool, dry place.
 For best before and date and batch number see on packaging. Manufactured in Belgium.
CHARACTERISTICS: Specialty yeast selected for its strong zesty character and spicy flavour. Sedimentation: medium. Final gravity: high. Temperature range: 12-20°C (53-67°F) ideally 15-20°C (59-69°F).
DOBAGE: 11.5 g in 20 to 30 litres.
PITCHING: Sprinkle into wort.
 NET WEIGHT: 11.5 g
 Fermentis
 LESAFFRE FOR BEVERAGES
 35947 1556 294
 35947 1556 294

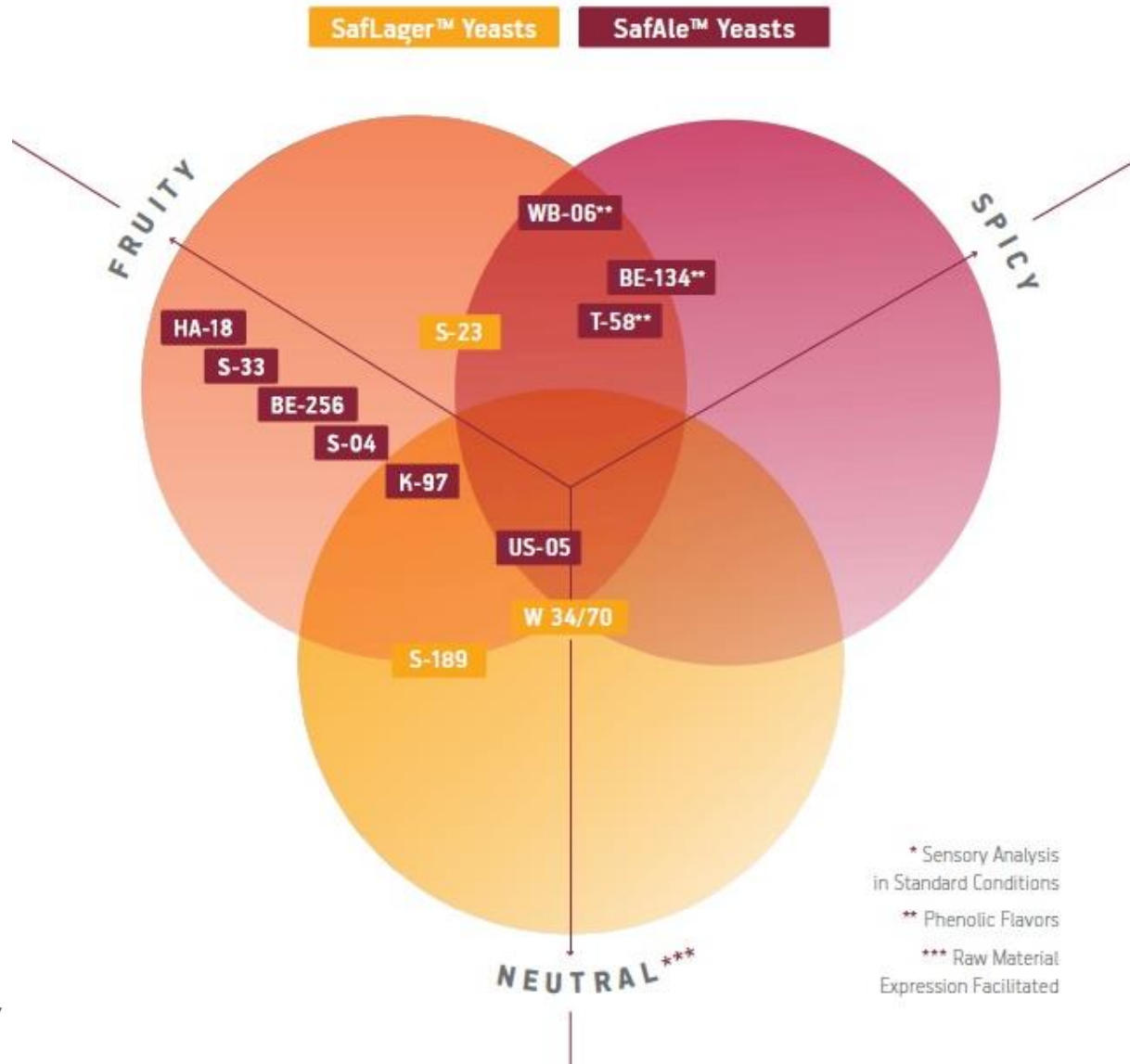
SafAle BE-134
DRY BREWING YEAST
 Lagerbeere, Weiss, unbrauner (E491).
 Packaged in a protective atmosphere.
 Store in a cool, dry place.
 For best before and date and batch number see on packaging. Manufactured in Belgium.
CHARACTERISTICS: Special yeast selected for the production of a large range of ales. Pils fermentation. Sedimentation: low. Final gravity: high. Temperature range: 12-20°C (53-67°F) ideally 15-20°C (59-69°F).
DOBAGE: 11.5 g in 20 to 30 litres.
PITCHING: Sprinkle into wort.
 NET WEIGHT: 11.5 g
 Fermentis
 LESAFFRE FOR BEVERAGES
 36339 1829 294
 36339 1829 294

SafAle WB-06
DRY WHEAT BEER YEAST
 Lagerbeere, Weiss, unbrauner (E491).
 Packaged in a protective atmosphere.
 Store in a cool, dry place.
 For best before and date and batch number see on packaging. Manufactured in Belgium.
CHARACTERISTICS: A specialty yeast selected for wheat beer fermentation. They yeast produces subtle ester and phenol flavor notes typical of wheat beers. Sedimentation: low. Final gravity: high. Temperature range: 12-20°C (53-67°F) ideally 15-20°C (59-69°F).
DOBAGE: 11.5 g in 20 to 30 litres.
PITCHING: Sprinkle into wort.
 NET WEIGHT: 11.5 g
 Fermentis
 LESAFFRE FOR BEVERAGES
 35946 1804 278
 35946 1804 278

SafAle F-2
DRY YEAST FOR REPRESENTATION
 Lagerbeere, Weiss, unbrauner (E491).
 Packaged in a protective atmosphere.
 Store in a cool, dry place.
 For best before and date and batch number see on packaging. Manufactured in Belgium.
CHARACTERISTICS: A specialty yeast selected for the production of a large range of ales. Pils fermentation. Sedimentation: low. Final gravity: high. Temperature range: 12-20°C (53-67°F) ideally 15-20°C (59-69°F).
DOBAGE: 20 g in 20 to 30 litres.
PITCHING: Sprinkle into wort.
 NET WEIGHT: 20 g
 Fermentis
 LESAFFRE FOR BEVERAGES
 35946 1804 278
 35946 1804 278



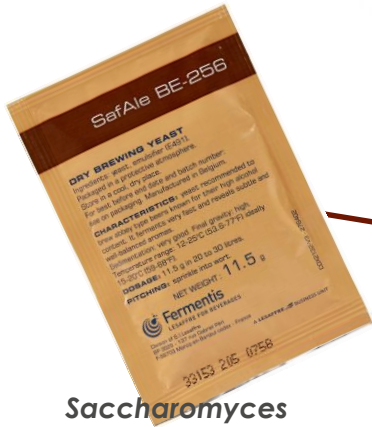
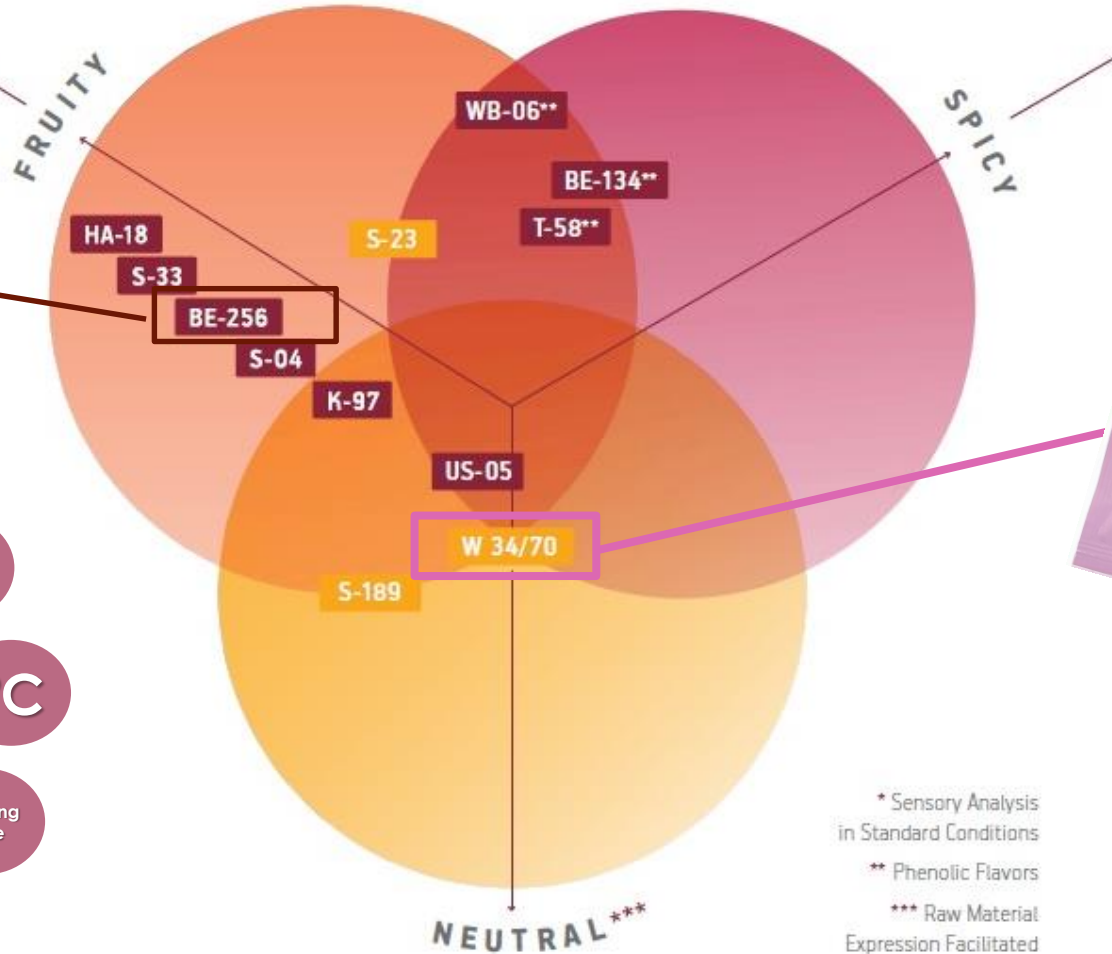
Baseline; flavour diversity ?



Baseline flavour and aromas

SafLager™ Yeasts

SafAle™ Yeasts



Saccharomyces cerevisiae



°P

°C

Pitching Rate



Saccharomyces pastorianus

* Sensory Analysis in Standard Conditions

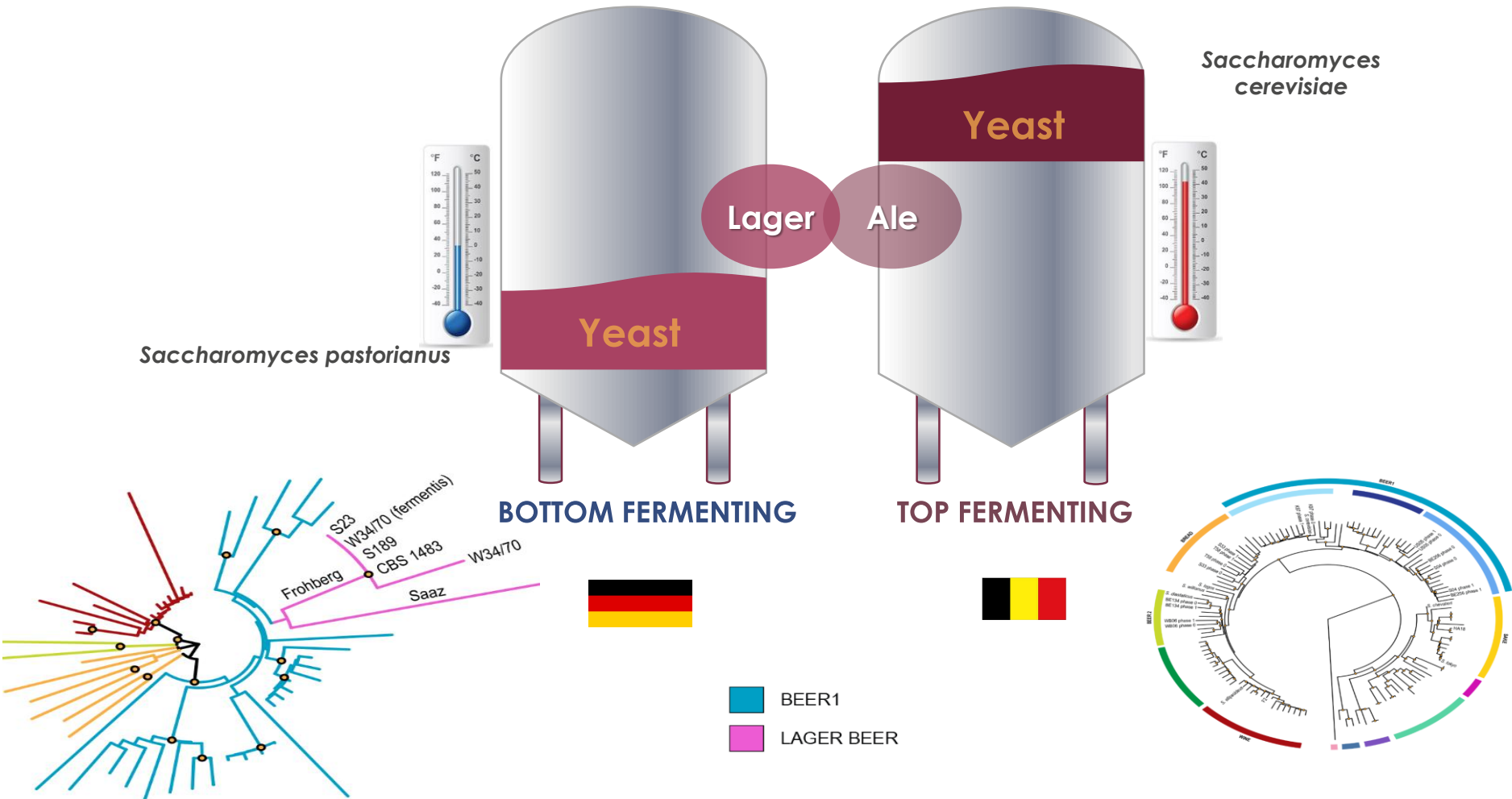
** Phenolic Flavors

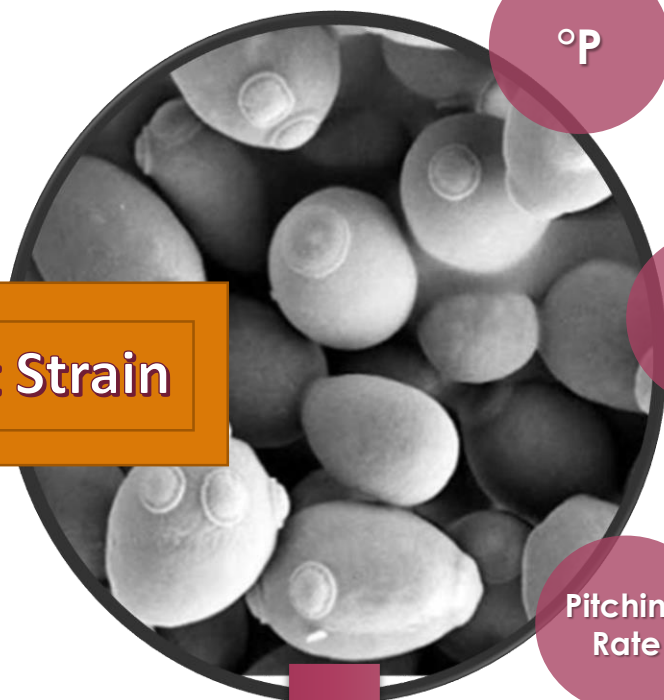
*** Raw Material Expression Facilitated

Lager Ale

Fermentis
LESAFFRE FOR BEVERAGES

EXPLORE FURTHER CLASSICAL BEER YEASTS





°P
12°P
16°P
20°P

°C
12°C
16°C
20°C
24°C

Pitching Rate
25 g/hL
50 g/hL
100 g/hL
200 g/hL

Yeast Strain

PROTOCOLS

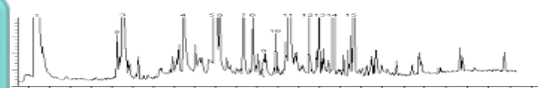
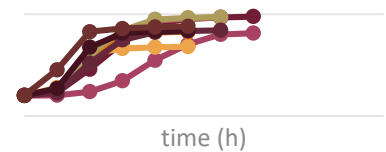
- All malt wort (pils)
- 28 EBU
- Direct pitching



Fermentation Performance

Volatiles

Sensory Analysis



Fermentis Beer Panel

Random, blind,
repetitions,
statistics tests!

Weekly
Sessions

40 panelists



2. Make your choice with Safale™ BE-256

All you need to know about this yeast



THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION



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LESAFFRE FOR BEVERAGES

Special and Strong Ales

Belgian Ales

- ✓ Belgian Blond Ales
- ✓ Belgian Dubbel
- ✓ Belgian Tripel
- ✓ Belgian Quadrupel
- ✓ *Abbey Beers

Belgian Strong Ales

- ✓ Belgian Strong Golden Ales
- ✓ Belgian Dark Strong Ales

British Strong Ales

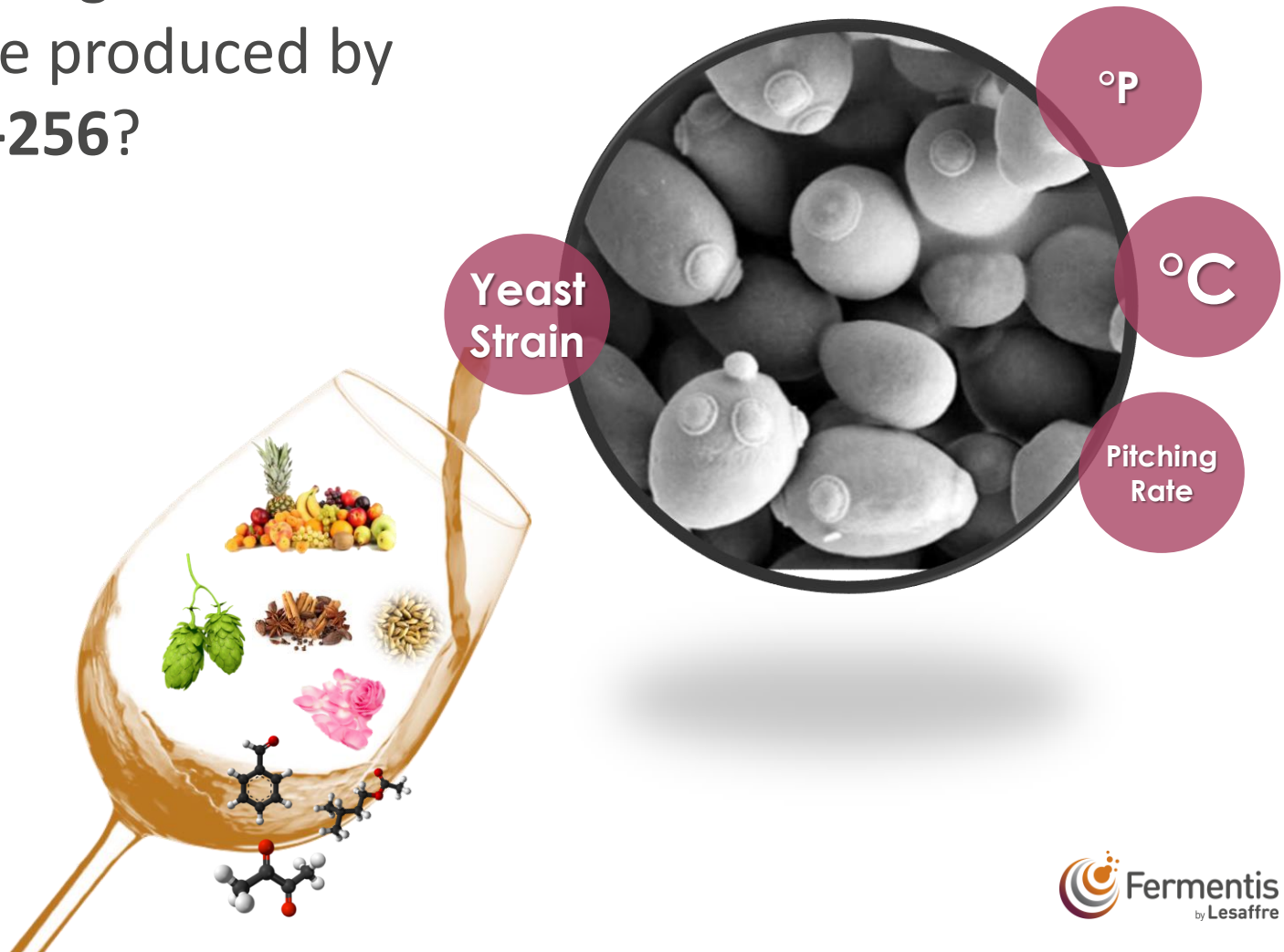
- Imperial Porters
- Imperial Stouts
- Barley Wines

American Strong Ales

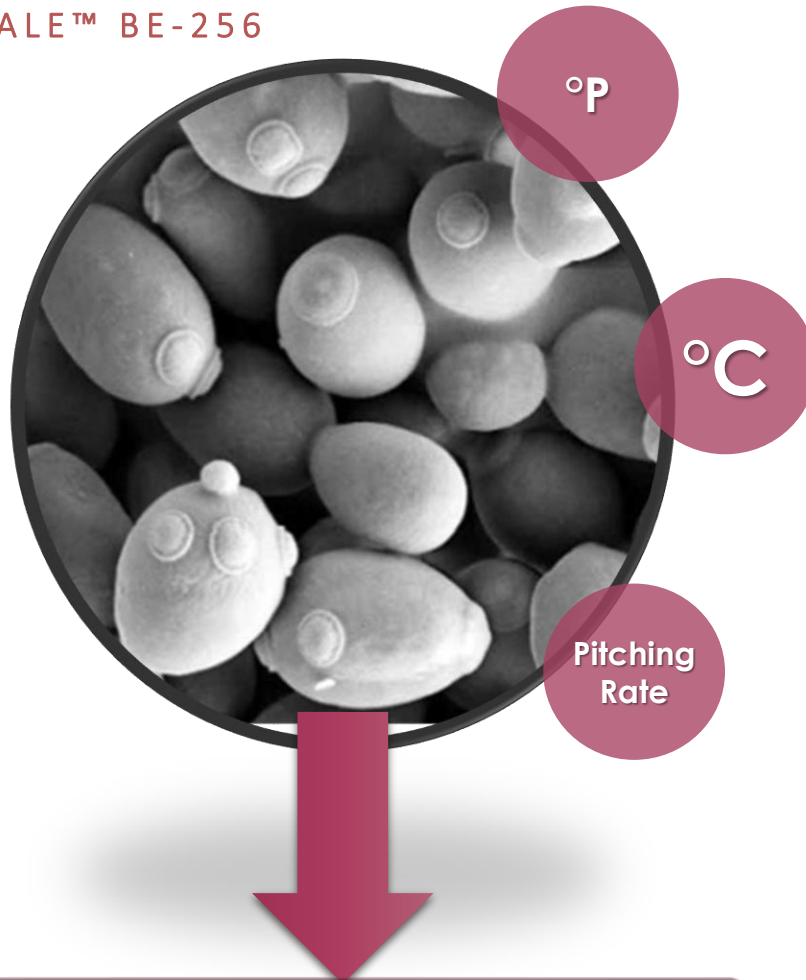
- Am. Imperial Porters
- Am. Imperial Stouts
- Am. Barley Wines



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



SAFALE™ BE-256



Fermentation Performance

Volatiles

Sensory Analysis

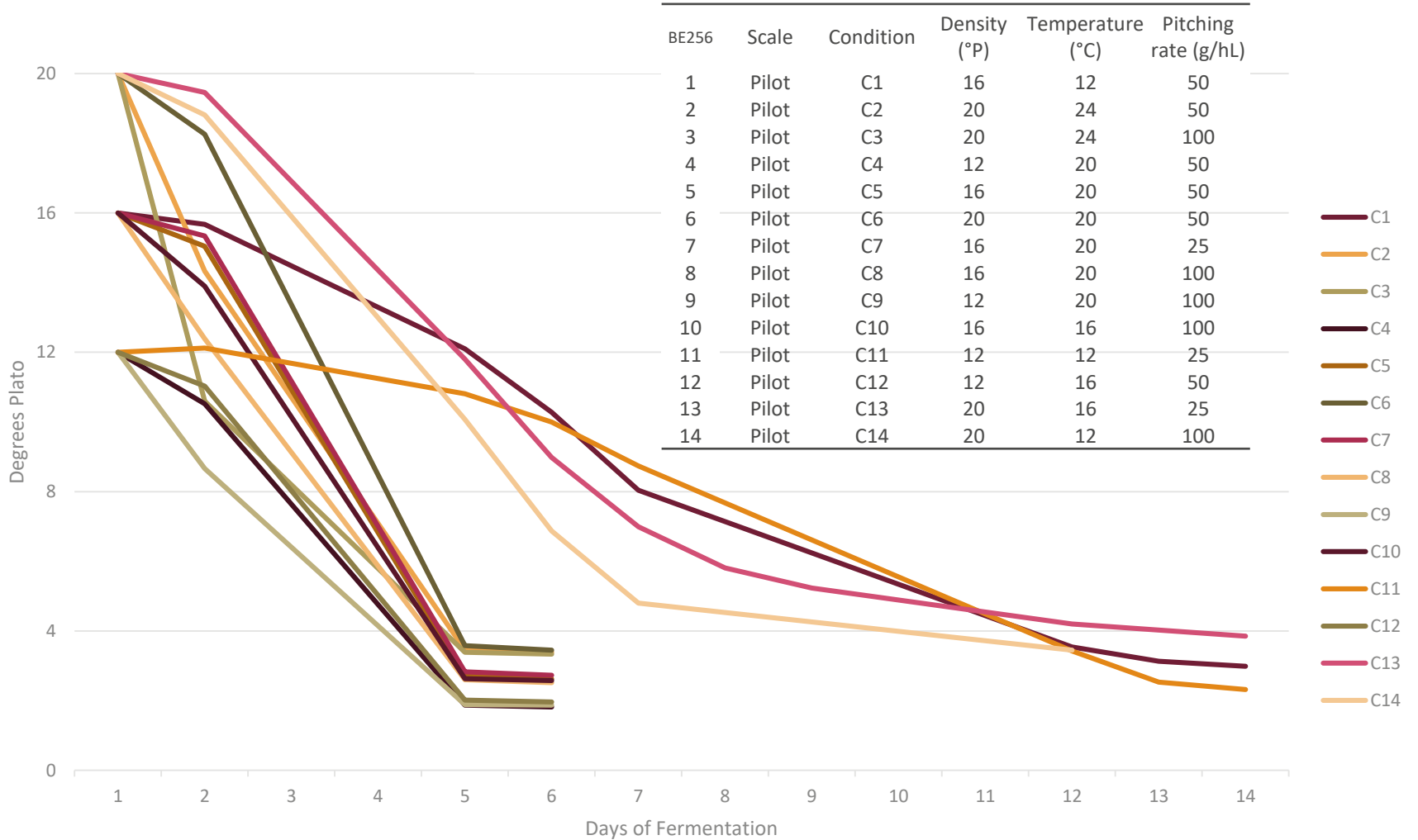
STUDIED CONDITIONS (14)

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

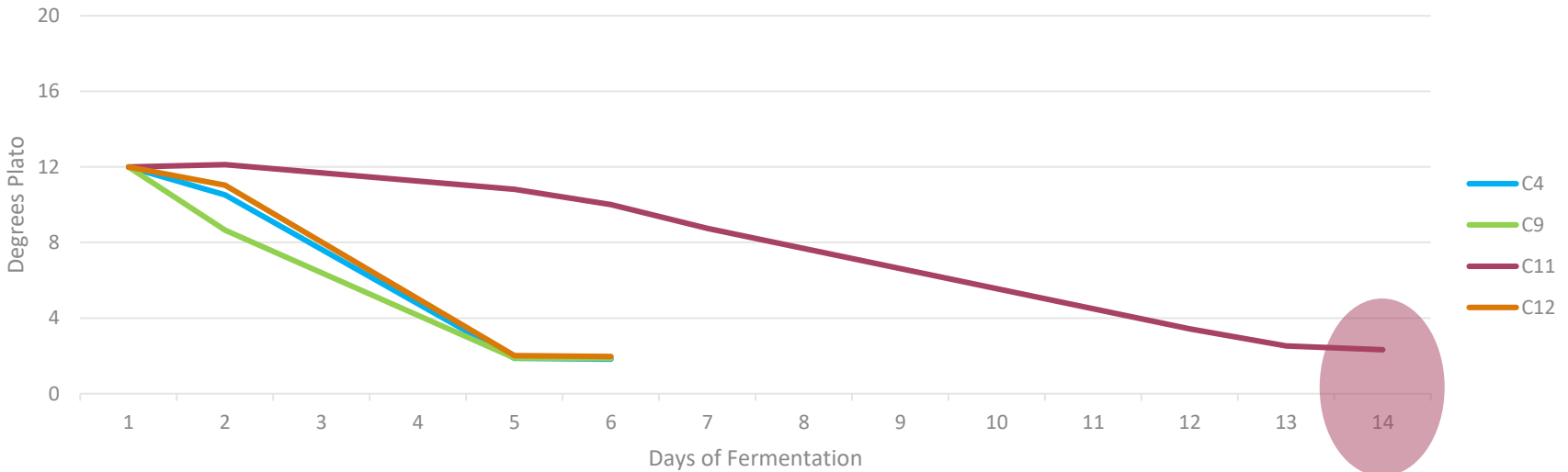


FERMENTATION PERFORMANCE

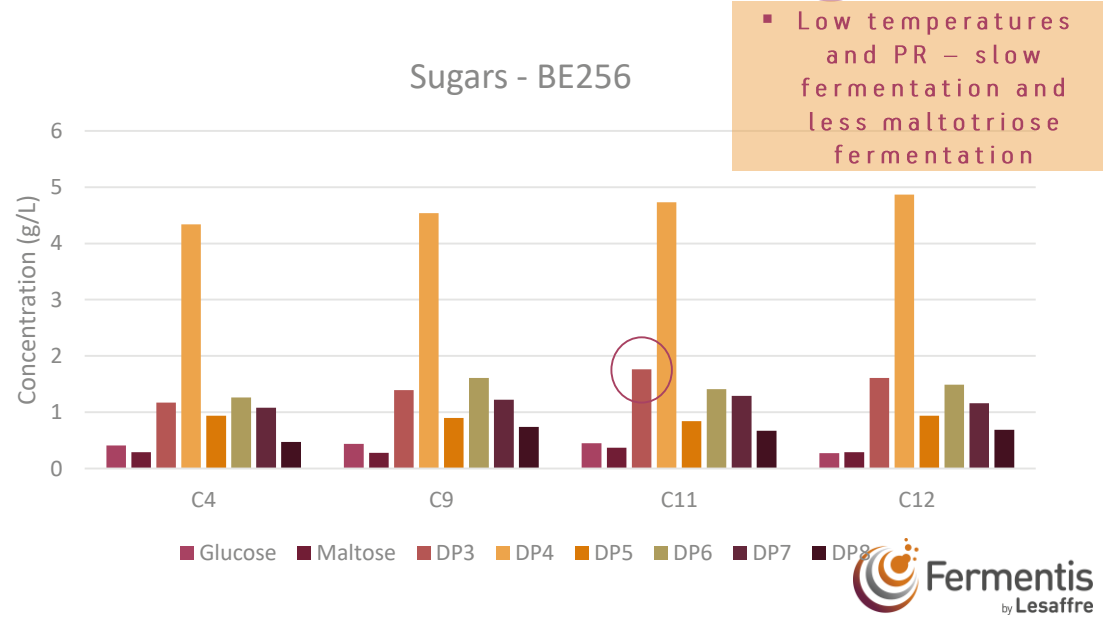


12°P

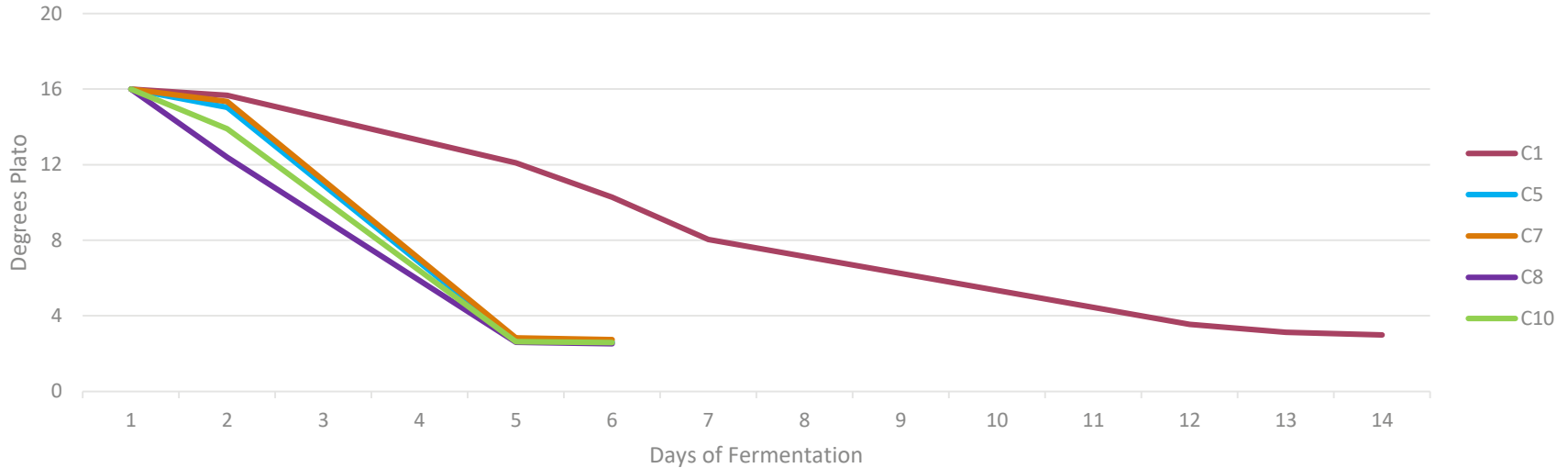
FERMENTATION PERFORMANCE



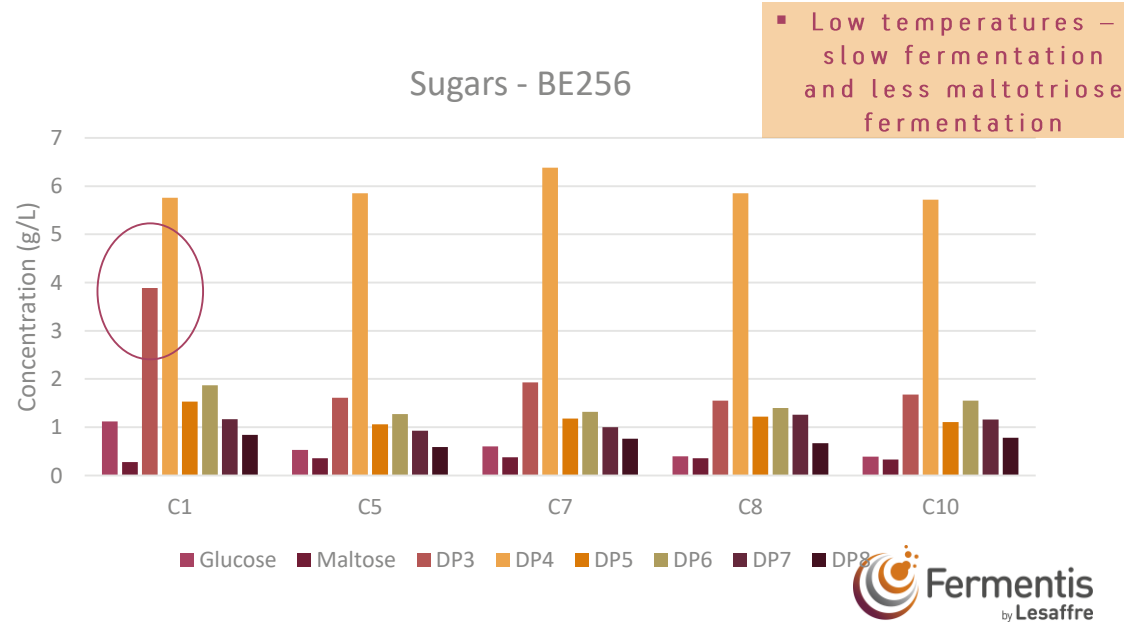
BE256	Scale	Condition	Density (°P)	Temperature (°C)	Pitching rate (g/hL)
1	Pilot	C1	16	12	50
2	Pilot	C2	20	24	50
3	Pilot	C3	20	24	100
4	Pilot	C4	12	20	50
5	Pilot	C5	16	20	50
6	Pilot	C6	20	20	50
7	Pilot	C7	16	20	25
8	Pilot	C8	16	20	100
9	Pilot	C9	12	20	100
10	Pilot	C10	16	16	100
11	Pilot	C11	12	12	25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



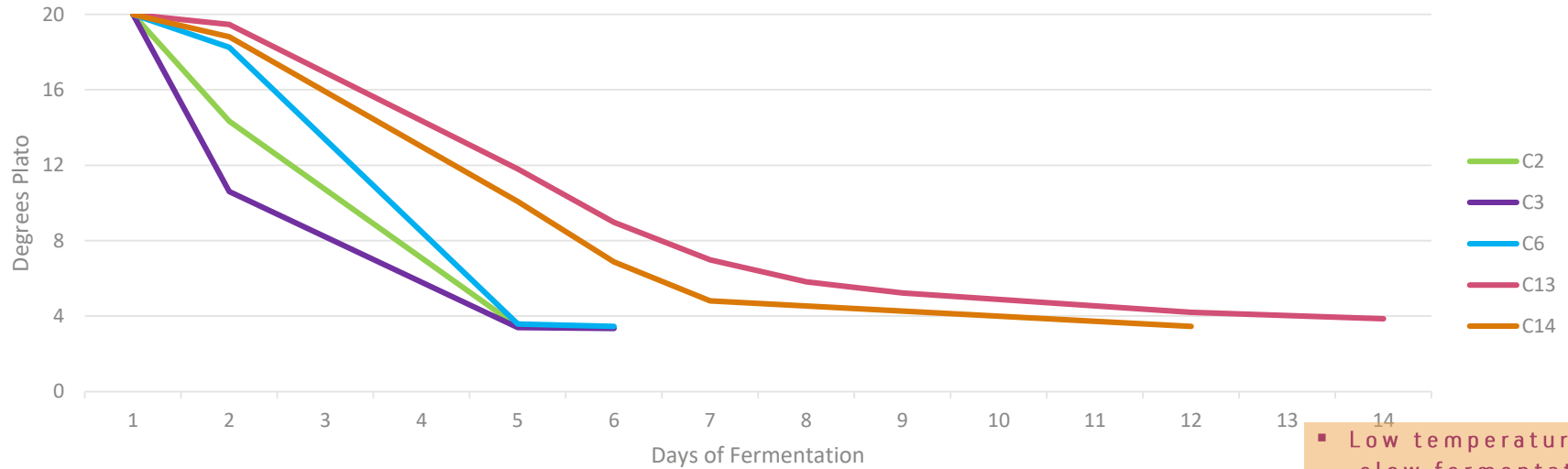
FERMENTATION PERFORMANCE



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

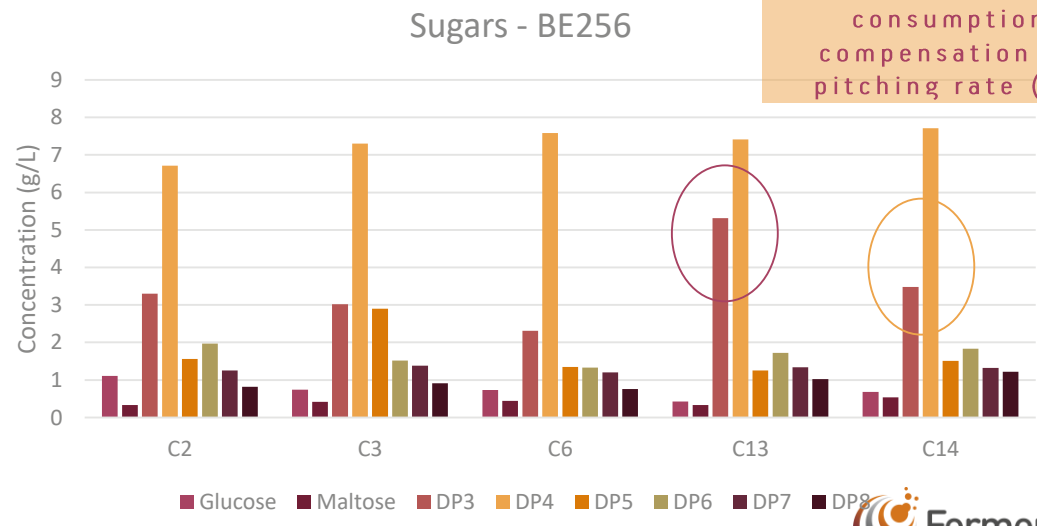


FERMENTATION PERFORMANCE



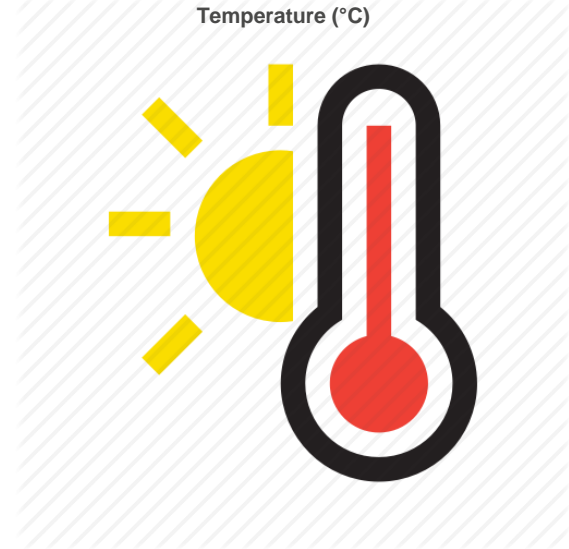
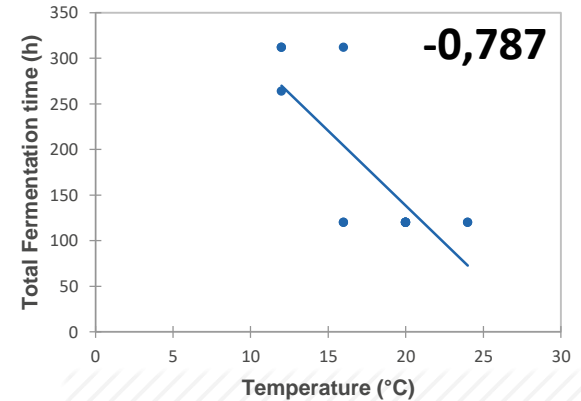
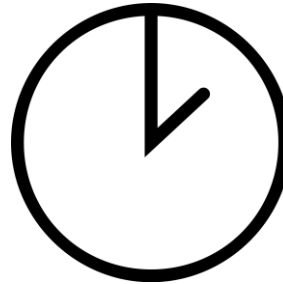
Low temperatures – slow fermentation and less maltotriose consumption – compensation with pitching rate (C14)

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



FERMENTATION PERFORMANCE

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

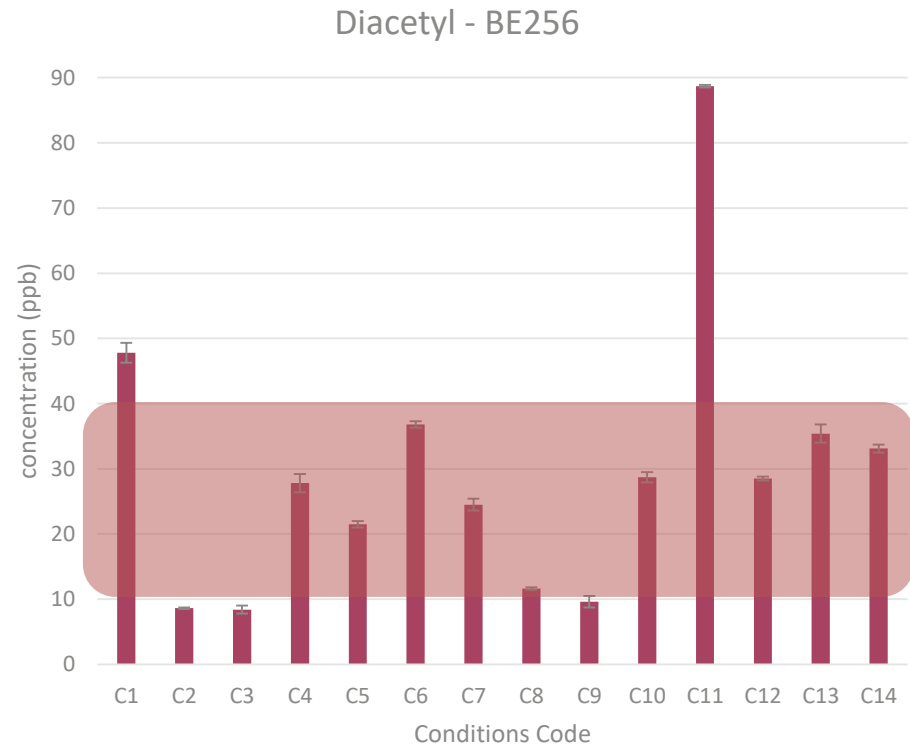
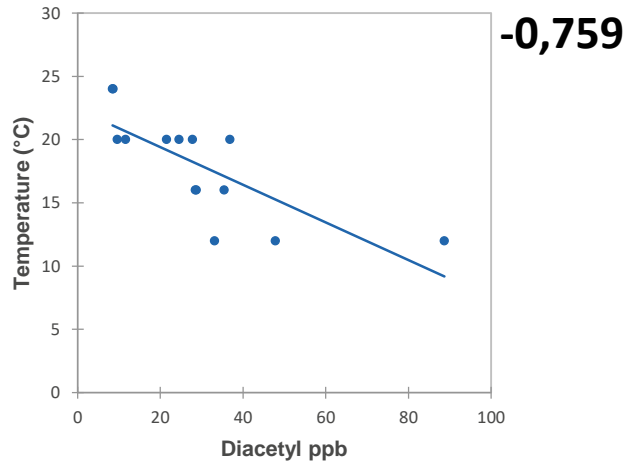


Correlation matrix (Pearson):

Variables	Pitching			
	Density (°P)	Temperature (°C)	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 $\alpha=0,05$

DIACETYL PRODUCTION



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)

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 ↓

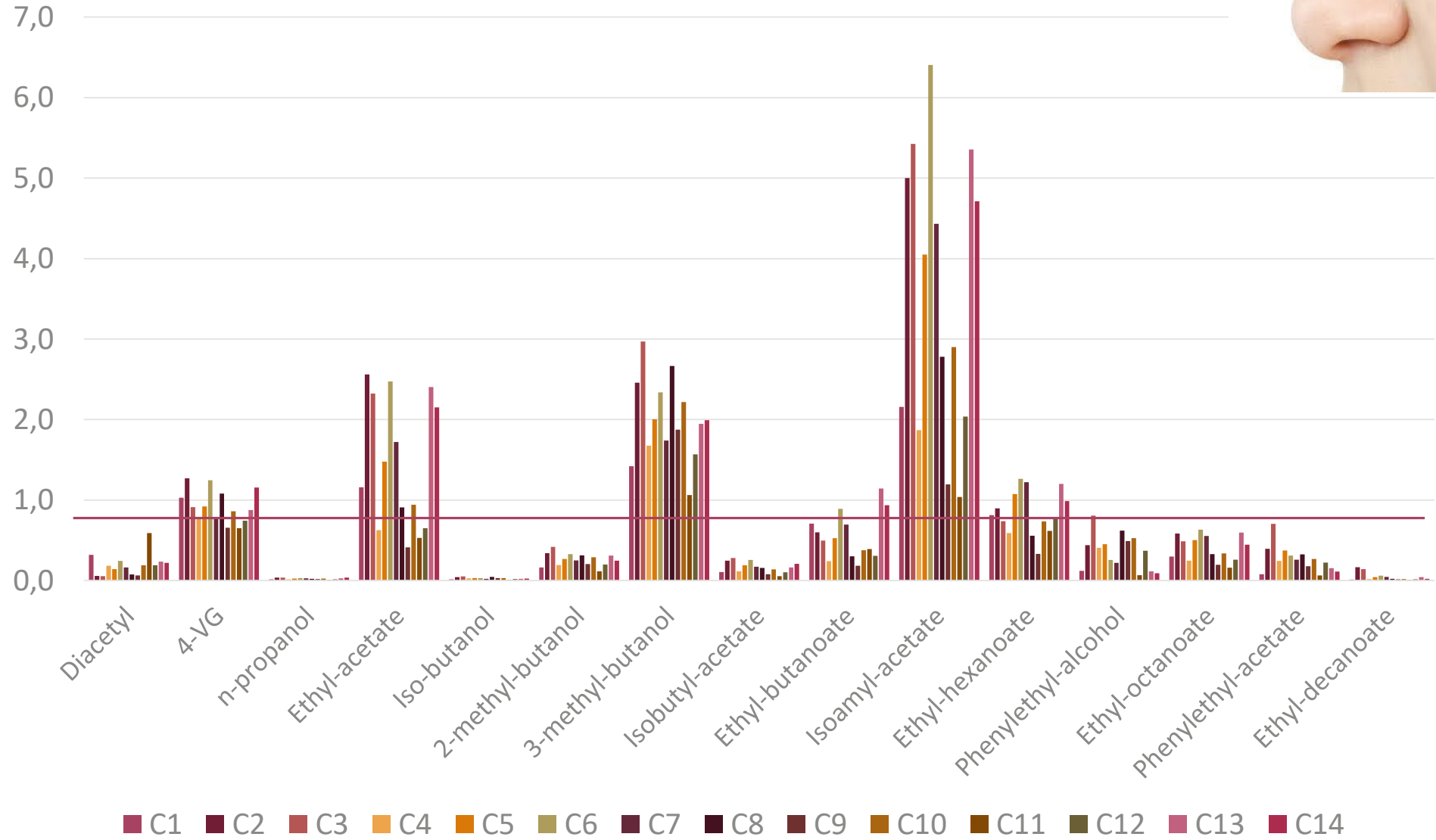
Plato ↑

- Residual sugars ↑

Pitching rate ↑

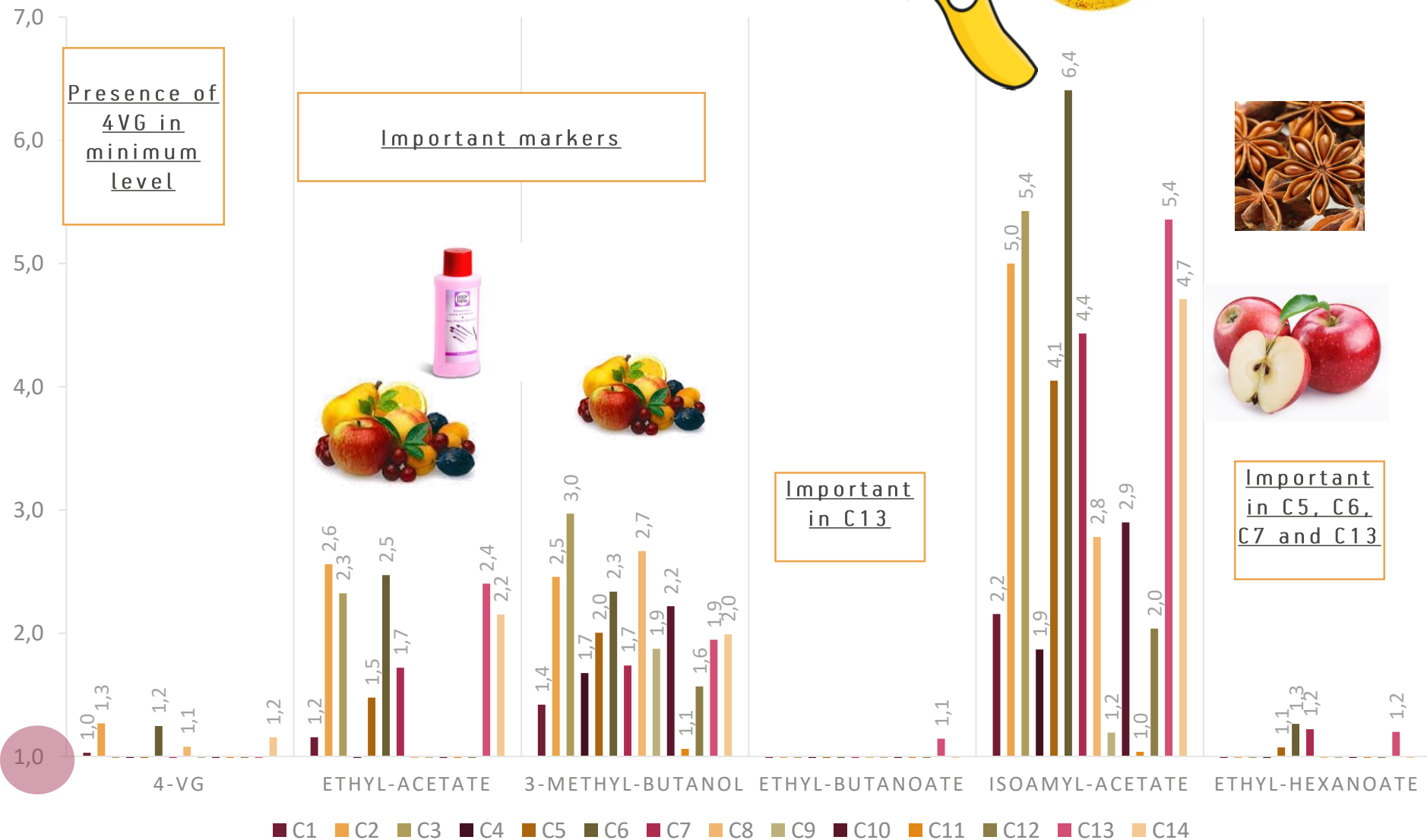
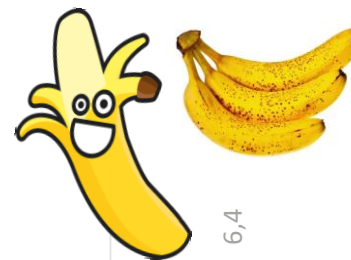
- Real degree of fermentation ↑

Volatiles - Odour Units



Concentration
Threshold = Flavour units

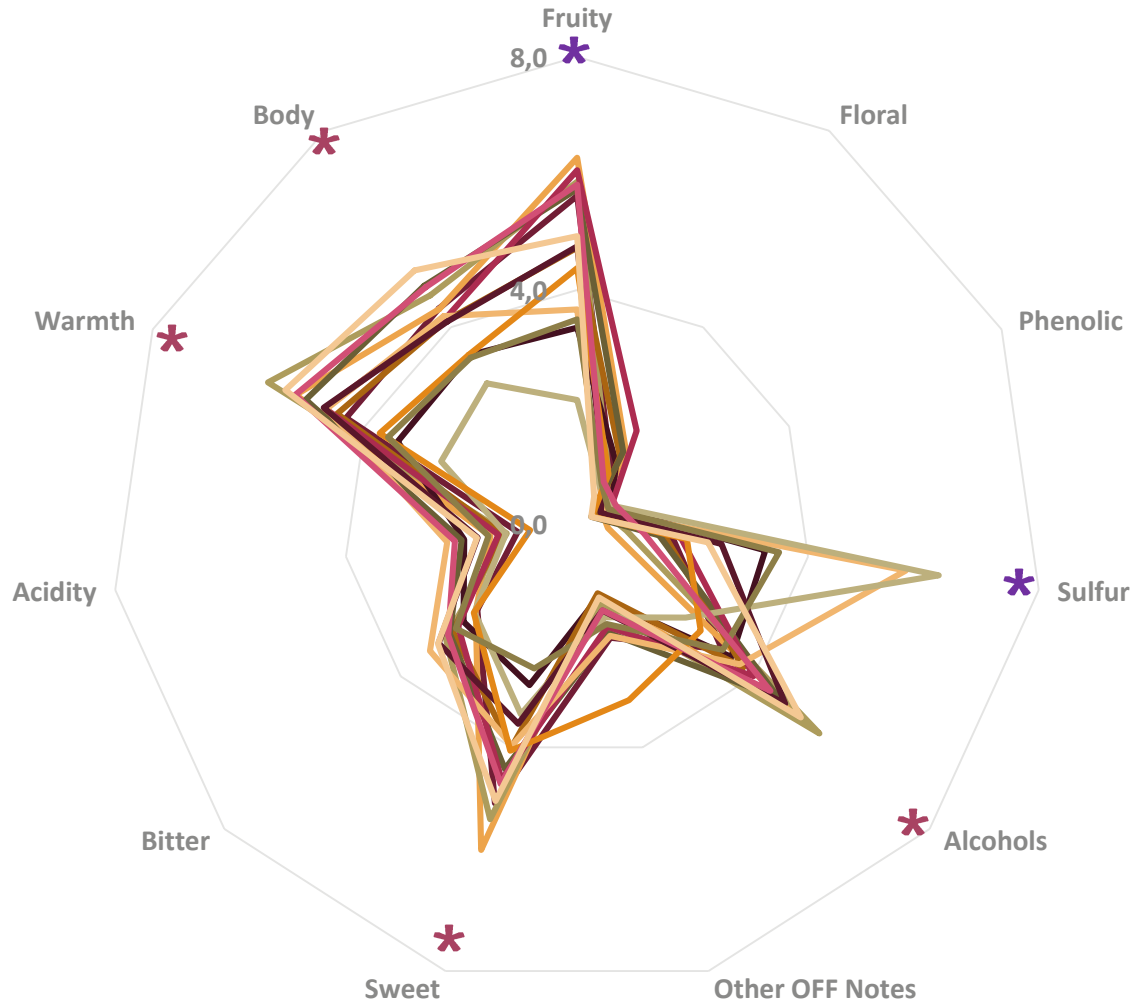
VOLATILES - ODOUR UNITS



PILOT TRIALS

BE 256 - Flavor Profile

C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14



*p<0,001

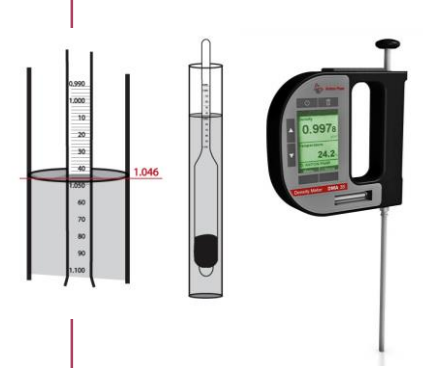
Gravity ↑

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 ↓



SafAle™ BE-256

A VERY AROMATIC YEAST



CONCLUSIONS

- Provides fruity flavors over different fermentation conditions, specially at higher densities and high fermentation temperatures.
- This yeast is ideal to brew strong and flavor rich Belgian ales.

3. Make your choice with SafLager™ W-34/70

All you need to know about this yeast



THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION



FERMENTIS
ACADEMY



Fermentis
LESAFFRE FOR BEVERAGES

Lagers

Light Lagers

- ✓ Lite American Lager
- ✓ Standard American Lager
- ✓ Premium American Lager
- ✓ Munich Helles
- ✓ Dortmunder Export

Pilsners

- ✓ German Pilsner (Pils)
- ✓ Bohemian Pilsener
- ✓ Classic American Pilsner

Amber Lagers

- ✓ Vienna Lager
- ✓ Oktoberfest/Märzen

Dark Lagers

- ✓ Dark American Lager
- ✓ Munich Dunkel
- ✓ Schwarzbier

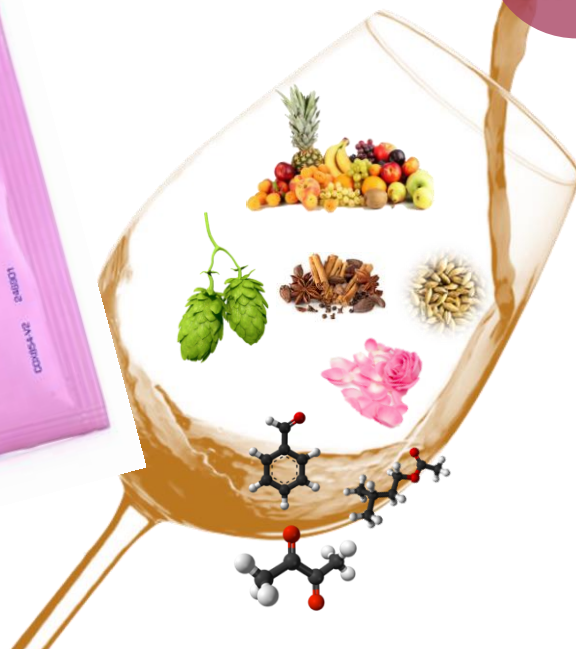
Bocks

- ✓ Maibock/
Helles Bock
- ✓ Traditional
Bock
- ✓ Doppelbock
- ✓ Eisbock

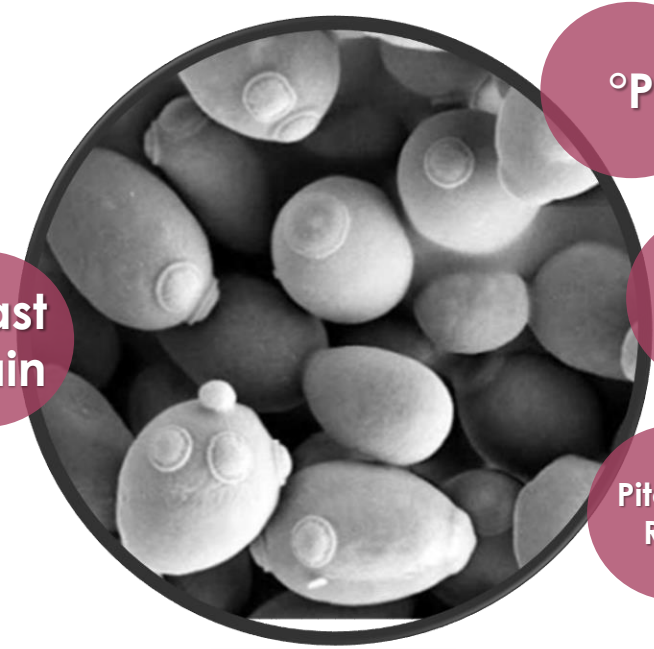


SAFLAGER™ W34/70

How fermentation parameters might affect e.g. the **NEUTRAL** flavor profile produced by Saflager™ W34/70?



Yeast Strain



pH

°C

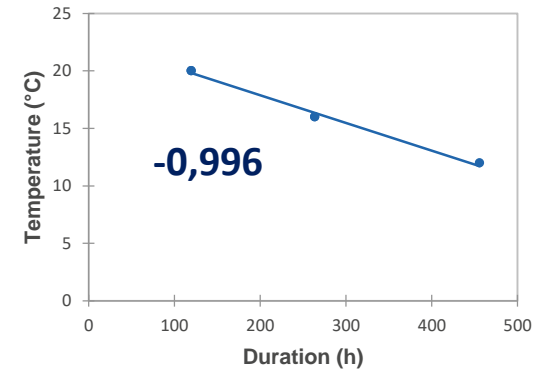
Pitching Rate


SAFLAGER W34/70

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 $\alpha=0,05$

At 100g/hL:





Temperature ↑

Fermentation time ↓

Flavors neutral!

Density ↑

Fermentation time ↑

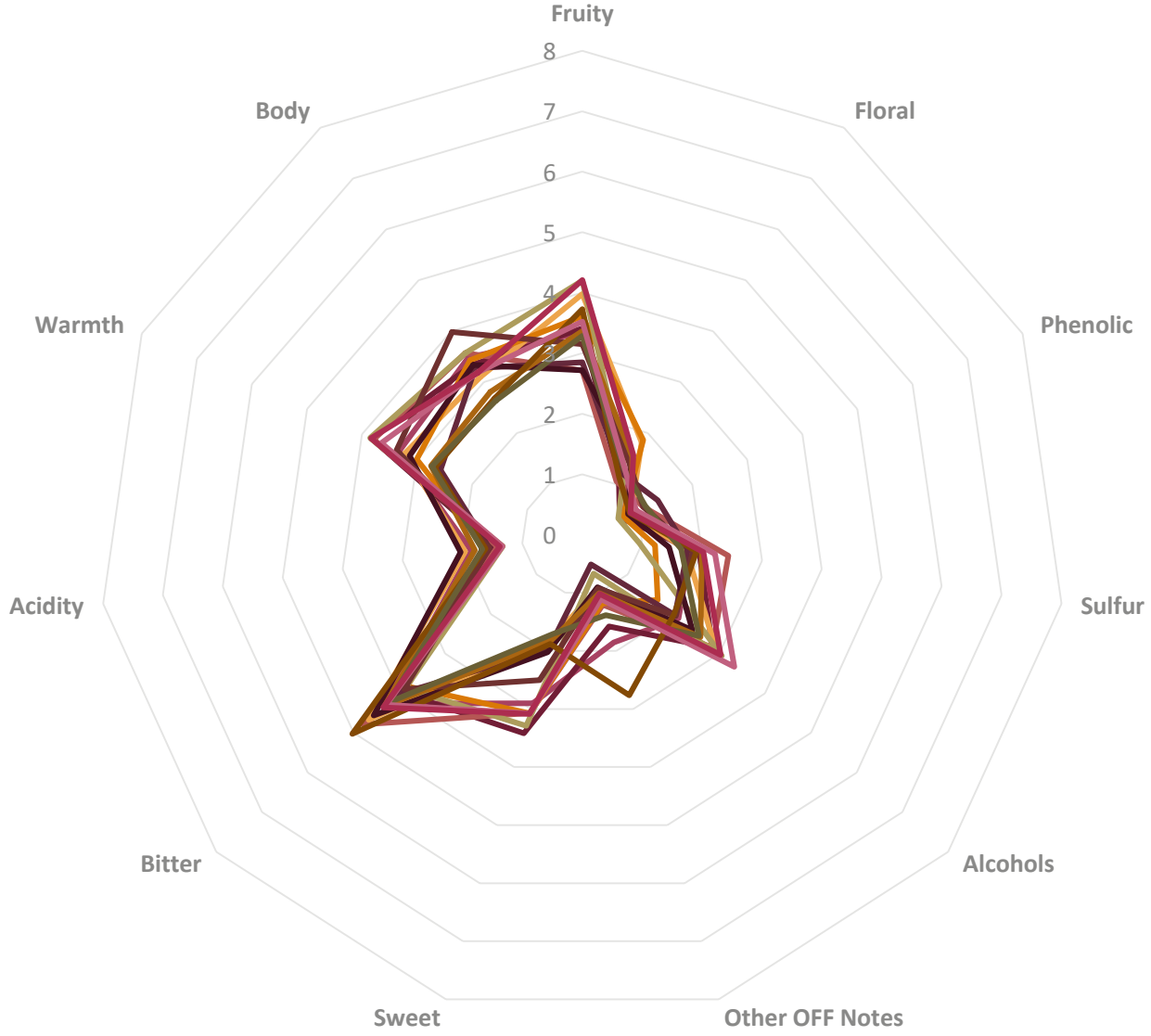
Higher volatiles ↑

No significant impact on flavor

At lower fermentation temperature higher risk of slow fermentation and off notes

C1-P C2-P C3-P C4-P C5-P C6-P C7-P
 C8-P C9-P C10-P C11-P C12-P C13-P C14-P

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



SafLager™ W-34/70

IDEAL FOR NEUTRAL
LAGER BEER



CONCLUSIONS

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

4. YEAST - HOP INTERACTIONS



THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION

YEAST - HOP INTERACTIONS



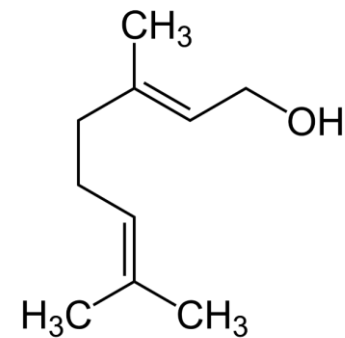
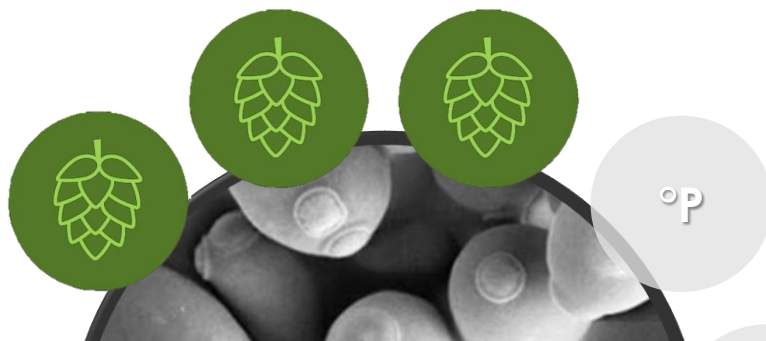
(Hop + Yeast)
Aroma:
a **mystery box!**

YEAST - HOP INTERACTIONS



Sensory Analysis

Hop Components Analysis



Monoterpene Alcohols

Hop derived Esters

Terpenes

Ox. Sesquiterpenes

Ketons

Aldehydes

Linalol

2+3 Methylbutylpropanoate

β-Myrceen

Caryophyllen oxide

β-Damascenon

Citral

Geraniol

3-Methylbutyl-2-methylpropanoat

α-Humuleen

2-Undecanon

Citronellol

2-Methylbutyl-2-methylpropanoat

Limonene

α-Terpineol

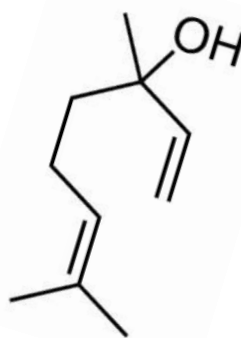
2-Methylbutyl-3-methylbutanoate

1-Terpinen-4-ol

Methyloctanoate

Methylgeranate

Geranylacetaat





Case 1: New England IPA – HAZY IPA

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 year's guidelines, including updates to existing beer styles and the creation of new categories. Updates of note include:

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



Style Guidelines

Exam & Certification

Competitions

Education & Training

Communications

Member Services

International Resources

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 breadly sweetness without caramel or toast. Absence of any malt character is 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 should 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.



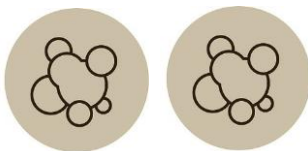
NEIPA – SENSORY ASPECTS



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 resinous, 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.

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



- 2 lager Yeasts



- 7 ale Yeasts (2 POF+)

RECIPE



9 yeasts studied

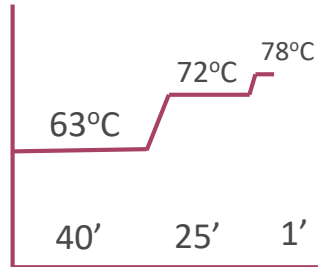
- S33
- S04
- US05
- K97
- BE256
- BE134
- T58
- S189
- S23

Wort

16°P
10% flaked oats
10% flaked wheat
80% pils malt



Mash



Hops

Citra
Simcoe
Mosaic

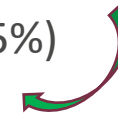
1 kg / hL

Fermentation:

23°C

Maturation (25%)

10°C



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

Centrifugation

Fermentation Performance

Volatiles Profile

Sensory Analysis



FERMENTIS
ACADEMY



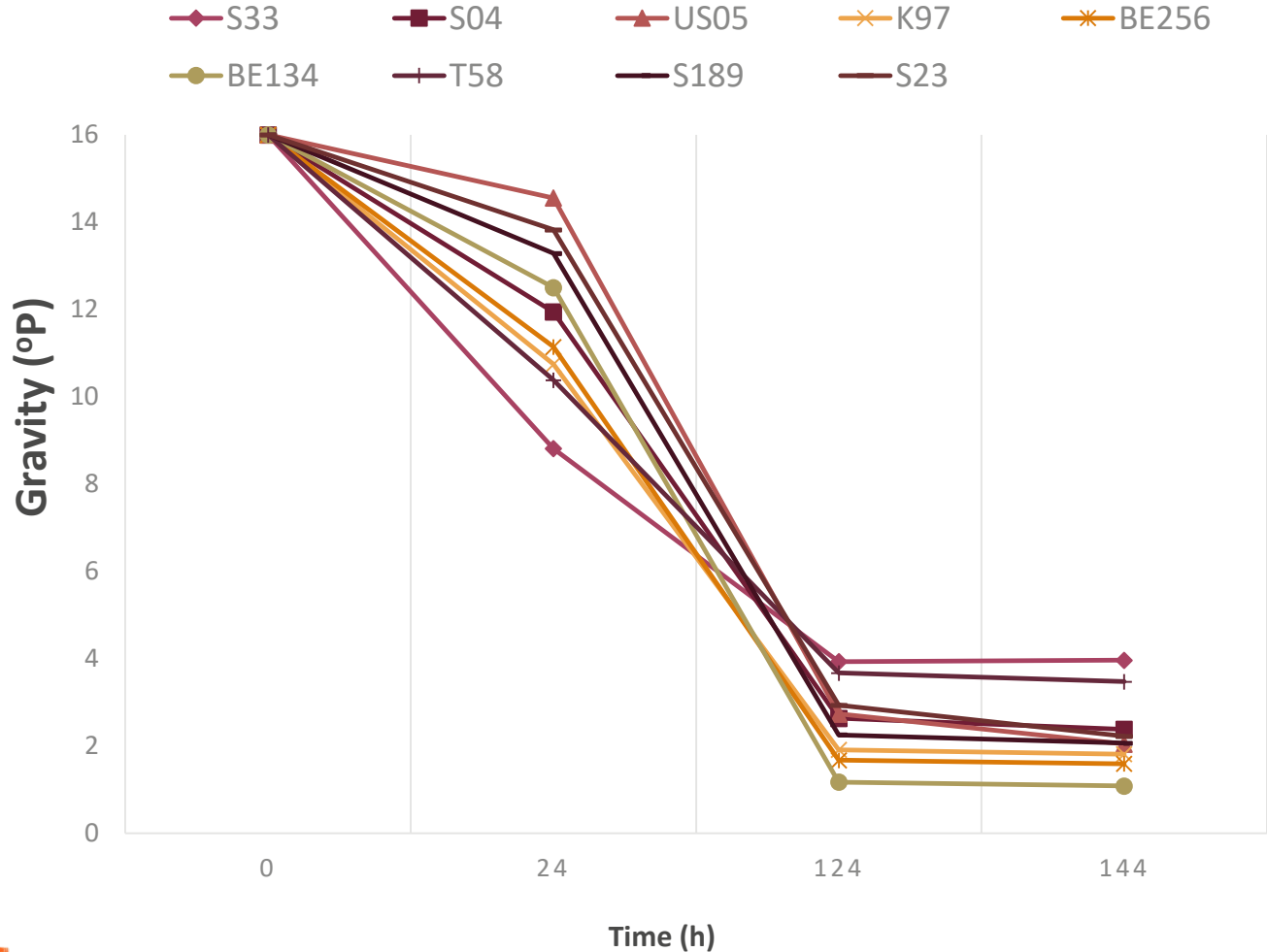
Fermentis
LESAFFRE FOR BEVERAGES



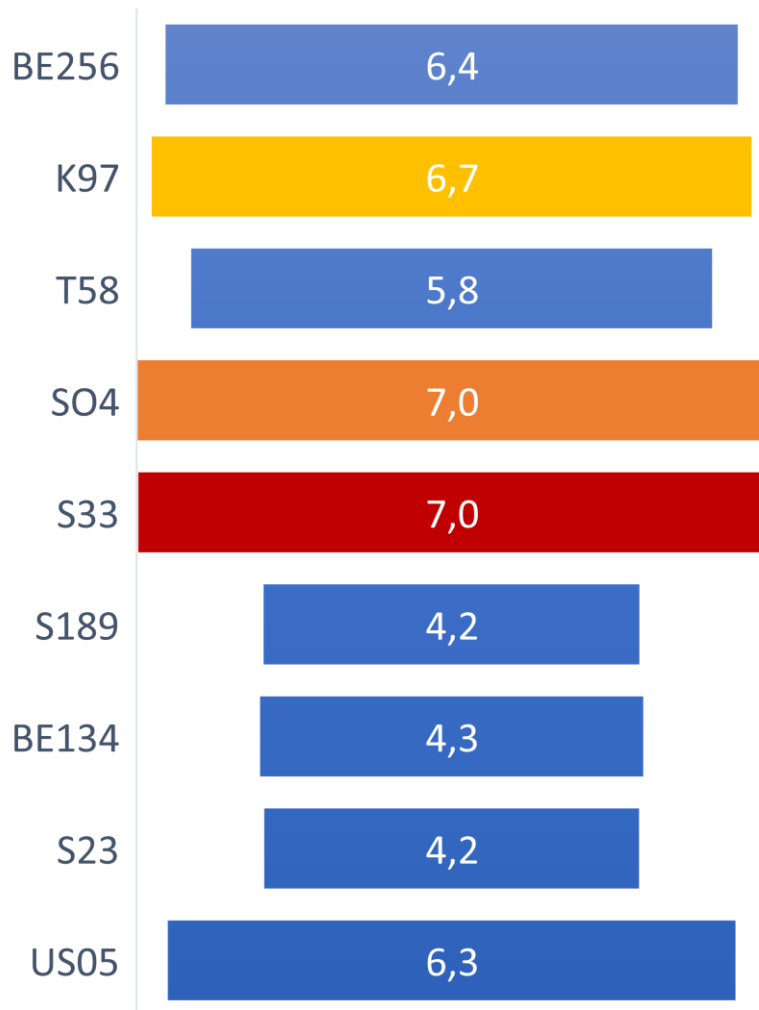
FERMENTATION PERFORMANCE

- Yeasts Studied

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



TURBIDITY LEVEL



None, **brillant** Very strong, **opaque**

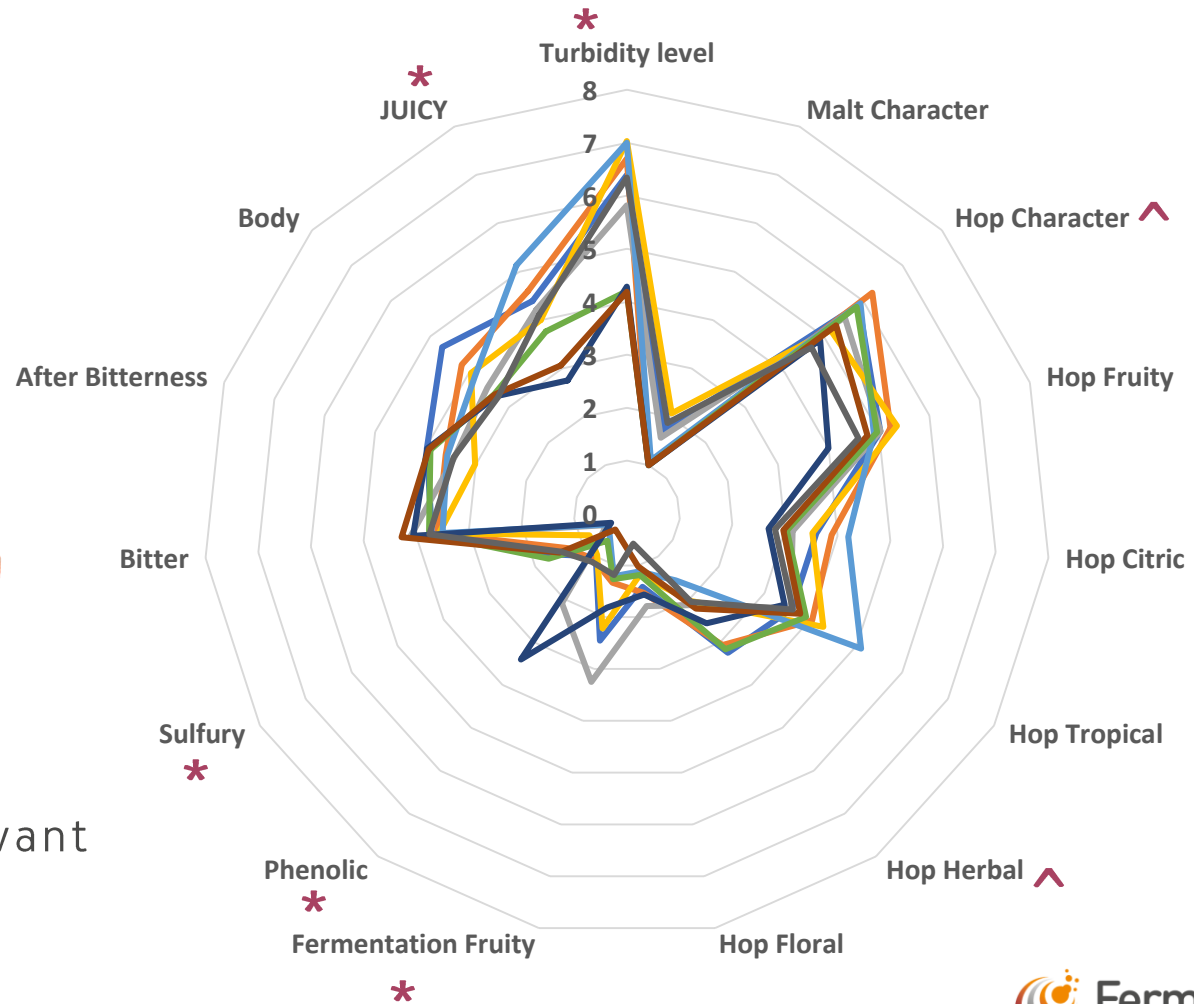


MALT CHARACTER



SENSORY CHARACTERISTICS

— BE256 — K97 — T58 — SO4 — S33 — S189 — BE134 — S23 — US05

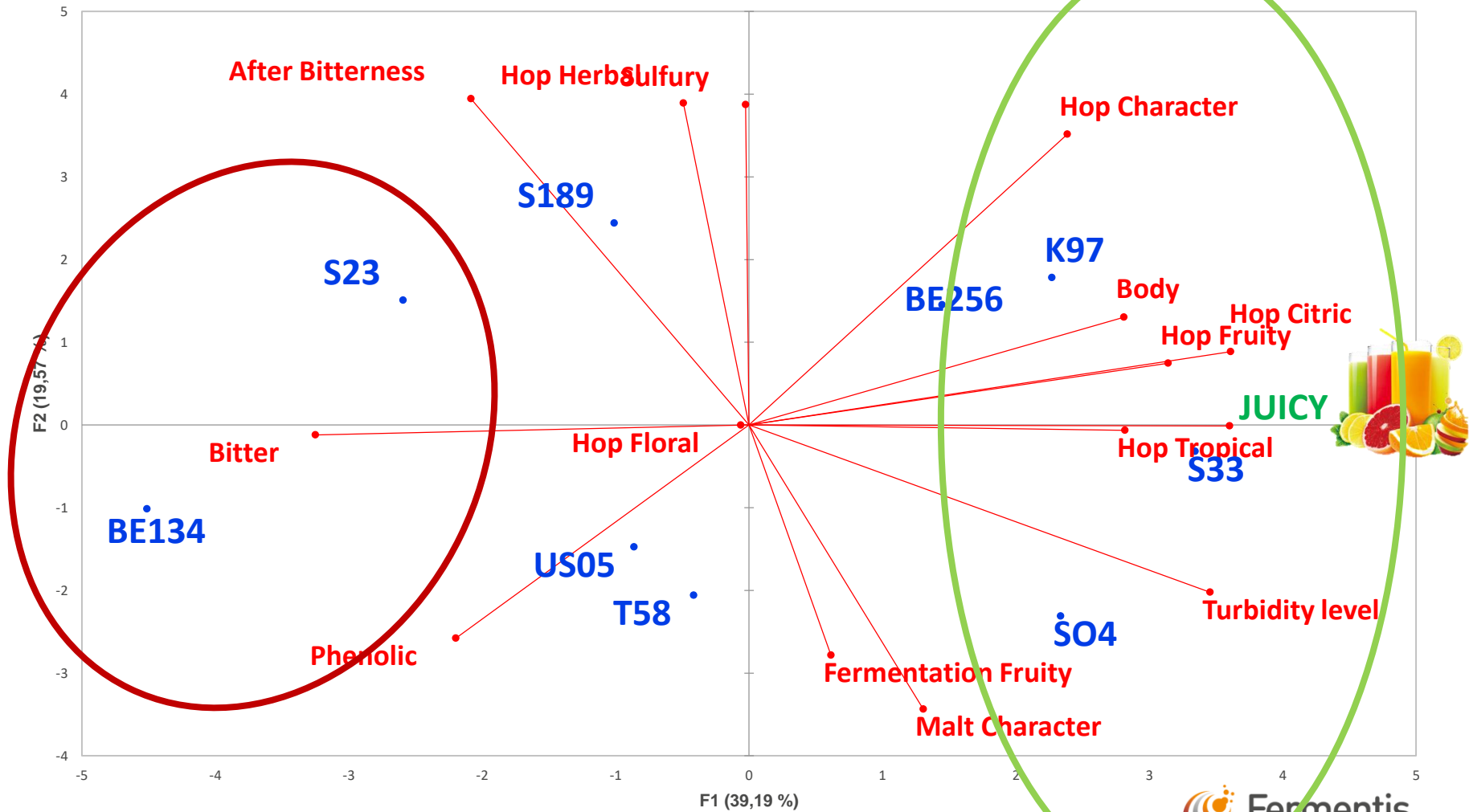


* Statistically relevant

^ Tendency

SENSORY DATA

Biplot (axes F1 and F2: 58,75 %)

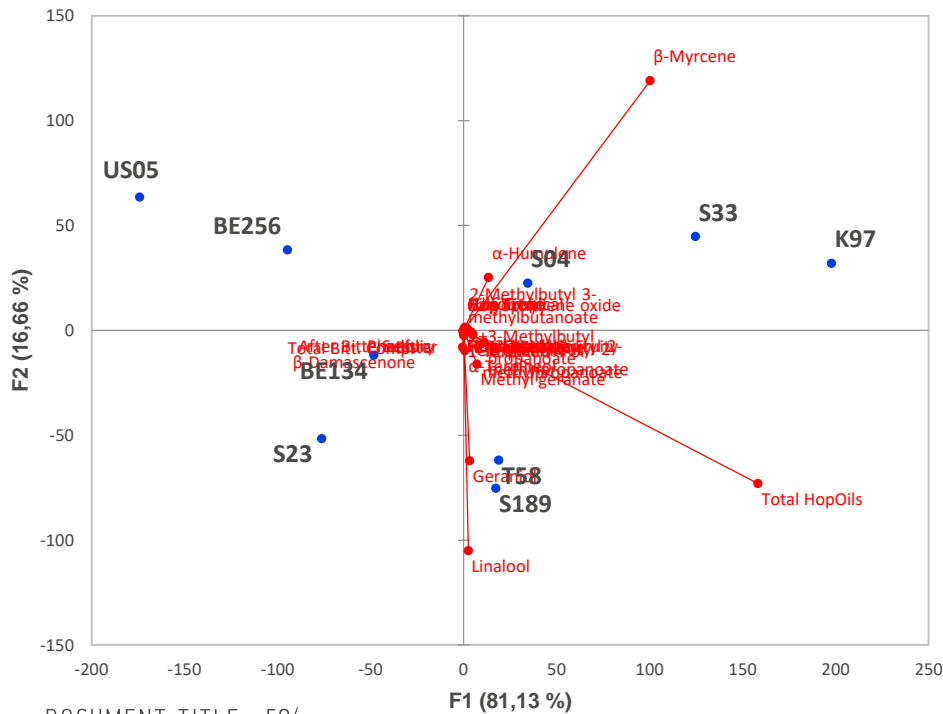


• Active variables • Active observations

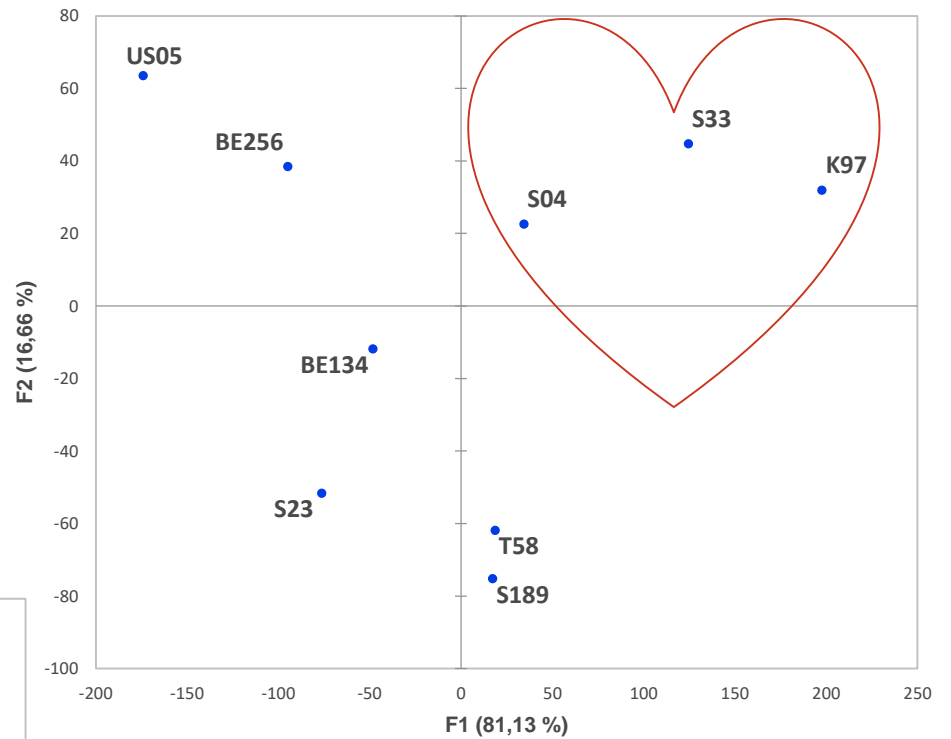


Hop components

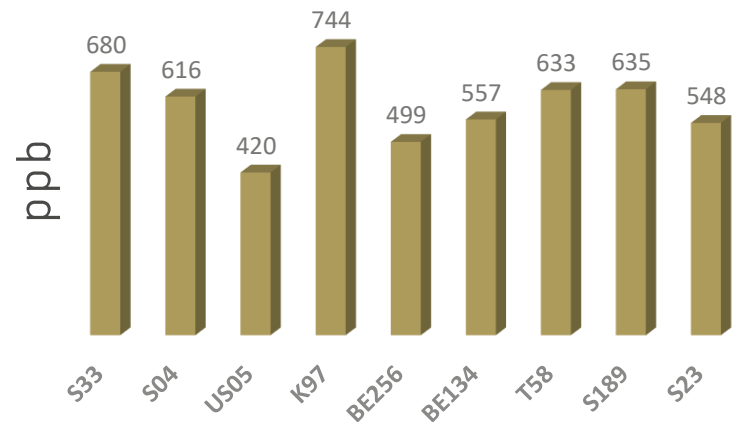
Biplot (axes F1 and F2: 97,80 %)



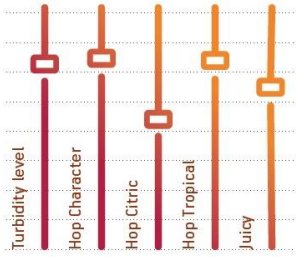
Observations (axes F1 and F2: 97,80 %)



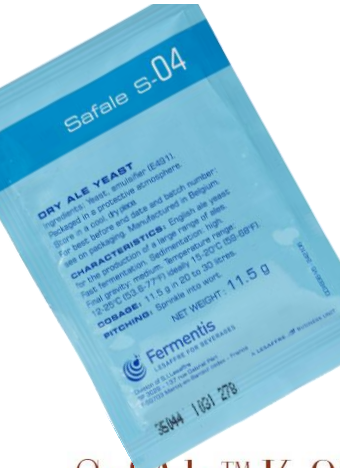
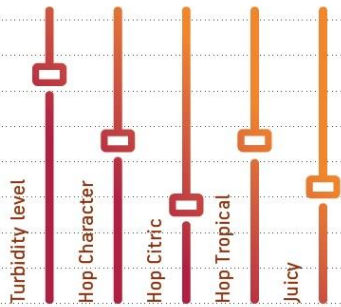
Total sum Hop Oils



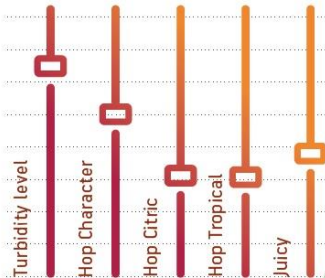
SafAle™ S-33



SafAle™ S-04



SafAle™ K-9



ACTIVE DRY YEASTS

RETHINK YOUR NEIPA

We have selected 3 Fermentis active dry yeasts to help you get a juicy, hoppy and hazy beer!

SafAle™ K-97 | SafAle™ S-04 | SafAle™ S-33

 **Fermentis**
LESAFFRE FOR BEVERAGES

Case 2: Brut IPA – Champagne IPA

The Birth of the Brut IPA

An enzyme long used to help make big imperial stouts a little easier on the palate has found a new purpose in an emerging style of IPA. The Brut IPA is a dry-0° Plato-version of the style that was created just months ago and is now spreading like wildfire.

JOHN HOLL 7 months ago



Is Brut IPA the Newest Hop Trend?
Beer News

Meet the next big IPA substyle in craft: Brut IPA

DOCUMENT TITLE

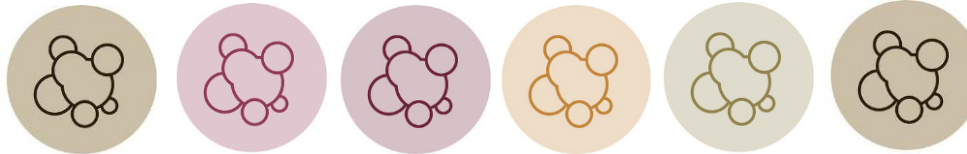


“Think of a sparkling glass of dry Champagne but with fruit-forward hop aromas”



Case 2: Brut IPA – Champagne IPA

1 type of BRUT IPA reference recipe
+ 6 Fermentis Yeast (1 POF+)



Fermentation Performance

Volatiles Profile

Sensory Analysis



BRUT IPA

RECIPE

Yeasts Studied

HA-18

S33

K97

BE256

S04

US05

+ AMG 50 g/hl

Wort

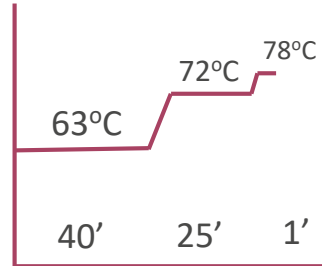
13°P

85% pils malt

15% sugar (at boiling)



Mash



Fermentation:

24°C

Maturation

0°C (2w)

Centrifugation

1,5 hl/h

Re-fermentation

F2 -> 14g/ hL

Hops

*1/3 each:

Cascade

Mosaic

Citra

700 g / hL

whirlpool



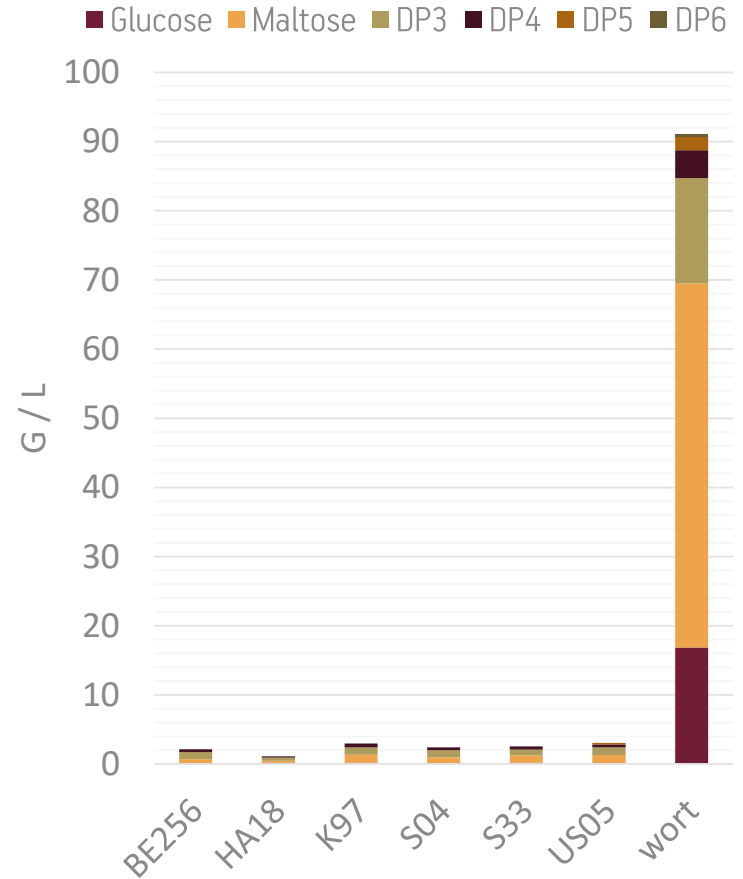
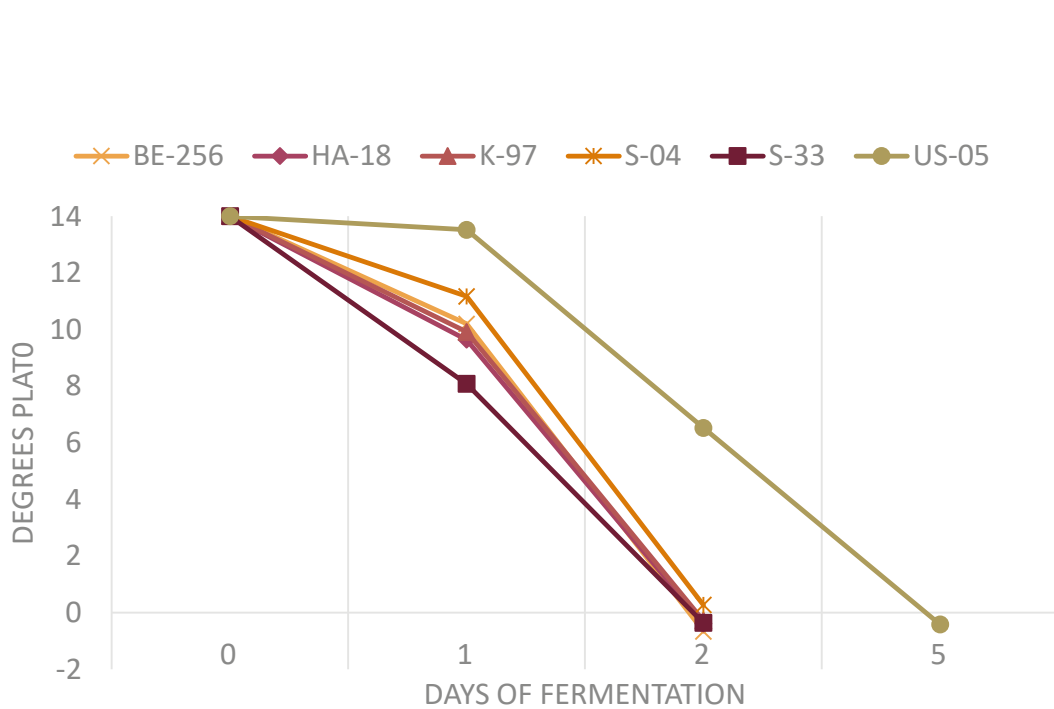
- Bitterness: 28 IBU
- ABV : 6,5-7 %
- CO2: 7 g/l



FERMENTIS
ACADEMY



FERMENTATION & SUGAR PROFILE

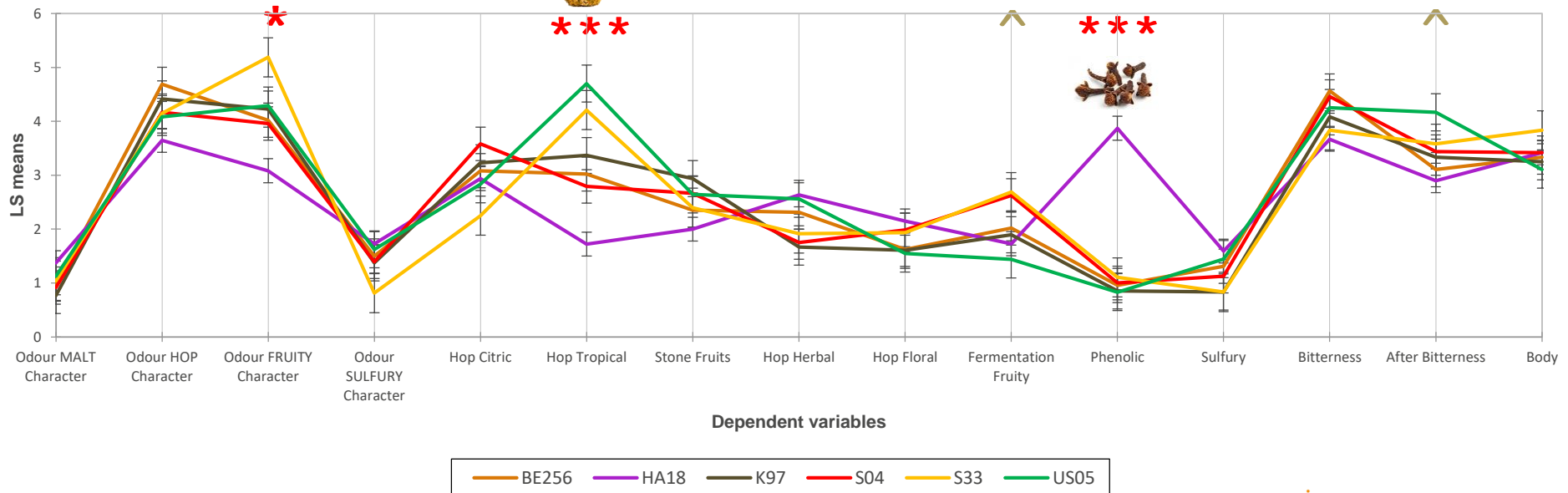


Intensity Profile

Yeast	Odour MALT Character	Odour HOP Character	Odour FRUITY Character	Odour SULFURY Character	Hop Citric	Hop Tropical	Stone Fruits	Hop Herbal	Hop Floral	Fermentation Fruity	Phenolic	Sulfury	Bitterness	After Bitterness	Body
BE256	0,979 a	4,688 a	4,021 ab	1,500 a	3,083 a	3,021 bc	2,354 a	2,313 a	1,625 a	2,021 a	0,956 b	1,313 a	4,563 a	3,104 a	3,333 a
HA18	1,376 a	3,646 a	3,083 b	1,729 a	2,938 a	1,721 d	2,000 a	2,637 a	2,151 a	1,729 a	3,872 a	1,591 a	3,667 a	2,896 a	3,417 a
K97	0,771 a	4,417 a	4,229 ab	1,375 a	3,229 a	3,367 bc	2,938 a	1,667 a	1,609 a	1,896 a	0,851 b	0,833 a	4,083 a	3,333 a	3,250 a
S04	0,917 a	4,167 a	3,958 ab	1,396 a	3,583 a	2,792 c	2,667 a	1,750 a	1,984 a	2,625 a	1,000 b	1,125 a	4,458 a	3,438 a	3,417 a
S33	1,042 a	4,146 a	5,188 a	0,813 a	2,250 a	4,208 ab	2,396 a	1,917 a	1,938 a	2,688 a	1,104 b	0,833 a	3,833 a	3,583 a	3,833 a
US05	1,125 a	4,083 a	4,292 ab	1,625 a	2,833 a	4,700 a	2,646 a	2,563 a	1,547 a	1,438 a	0,831 b	1,445 a	4,250 a	4,167 a	3,104 a
Pr > F(Model)	0,706	0,602	0,046	0,665	0,344	<0,0001	0,755	0,498	0,704	0,131	<0,0001	0,525	0,422	0,154	0,721
Significant	No	No	Yes	No	No	Yes	No	No	No	No	Yes	No	No	No	No



Summary (LS means) - Yeast



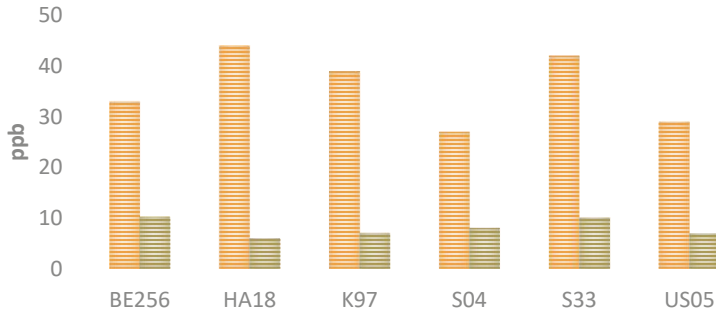
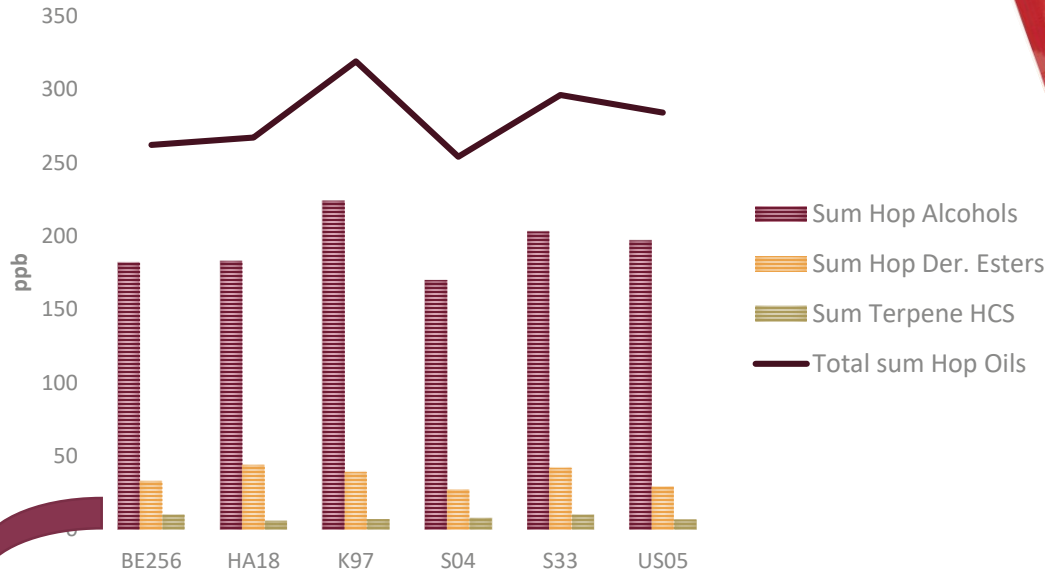
*(statistically relevant)

^(tendency)

HOP VOLATILES

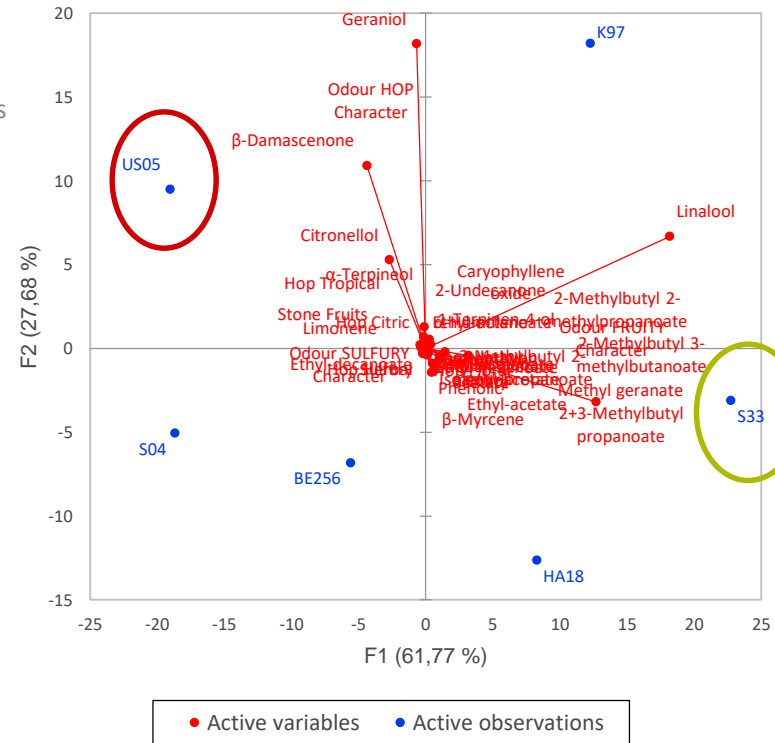


1



2

Biplot (axes F1 and F2: 89,46 %)





SafAle™ S-55 — SafAle™ US-05

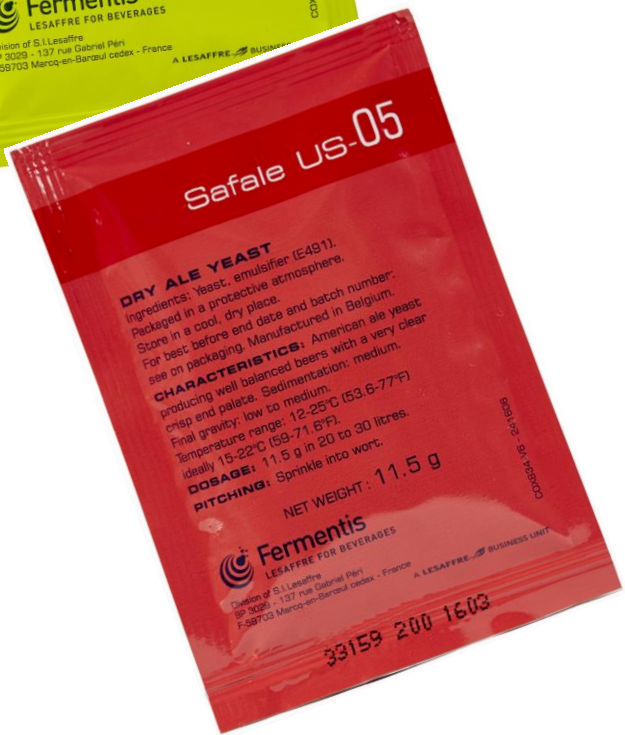
KEY ELEMENTS

Also known as Champagne beer, this new trendy beer style is characterised by a light pale colour, fruity-hoppy aromas and a bone-dry body. The use of specific enzymes and yeasts is mandatory and, to help, Fermentis recommends two strains. Get the advices of our experts and make your choice!

Ingredients: yeast (*Saccharomyces cerevisiae*), emulsifier E491.



FERMENTIS
ACADEMY



FERMENTIS APPLICATION



Products



Who are we ?

Find a distributor

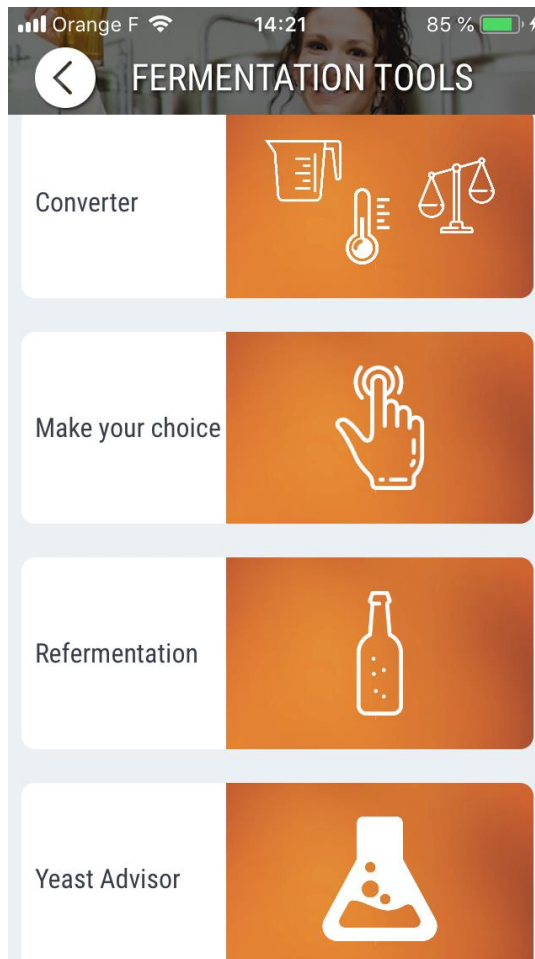


E2U™
Concept

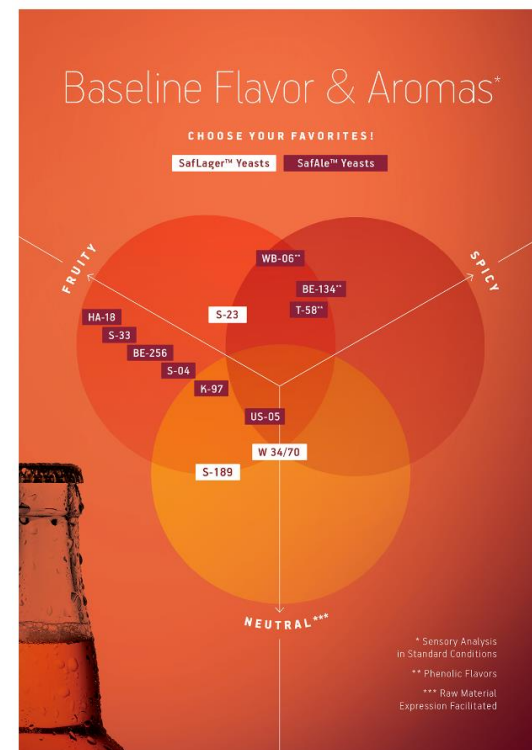
Fermentation tools



Fermentis
Academy



Zoom and click on two different strains to compare their technical data





Thank you!

g.bart@fermentis.lesaffre.com

  [Fermentis.com](https://www.fermentis.com)