

Active Dry Yeast (ADY)

A Viable E2U™ Solution and Implementation Tips

MONDAY, 10TH JUNE 2019

VLB BREWING CONFERENCE, BANGKOK



THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION

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RSM – South East Asia



Fermentis

LESAFFRE FOR BEVERAGES



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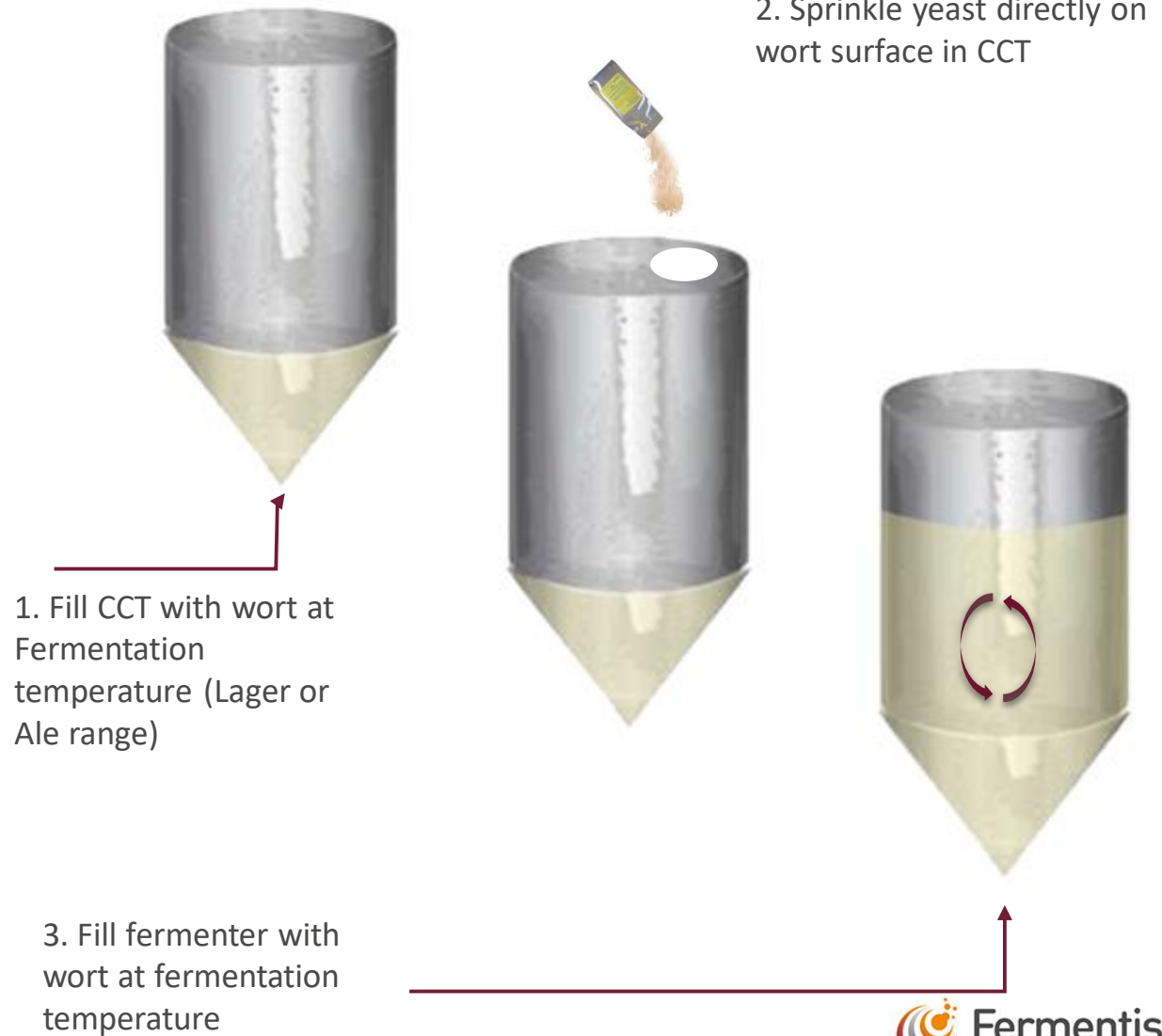
1. Active Dry Yeast Rehydration.
2. Yeast:
Flavour base & Aroma Baseline
3. Characterisation Study of a
Lager Strain.
4. Yeast flavor expression in the
New England IPA. (NEIPA)

USING ADY

E2U



EASY TO USE – DIRECT PITCH



USING ADY

REHYDRATION OR DIRECT PITCH

DIRECT PITCH SHOWS NO IMPACT ON:

- FERMENTATION KINETICS
- ETHANOL PROD. AND ATTENUATION
- VOLATILES COMPOUNDS



STUDYING AND DEFINING PARAMETERS

DEFINING THE BASELINE



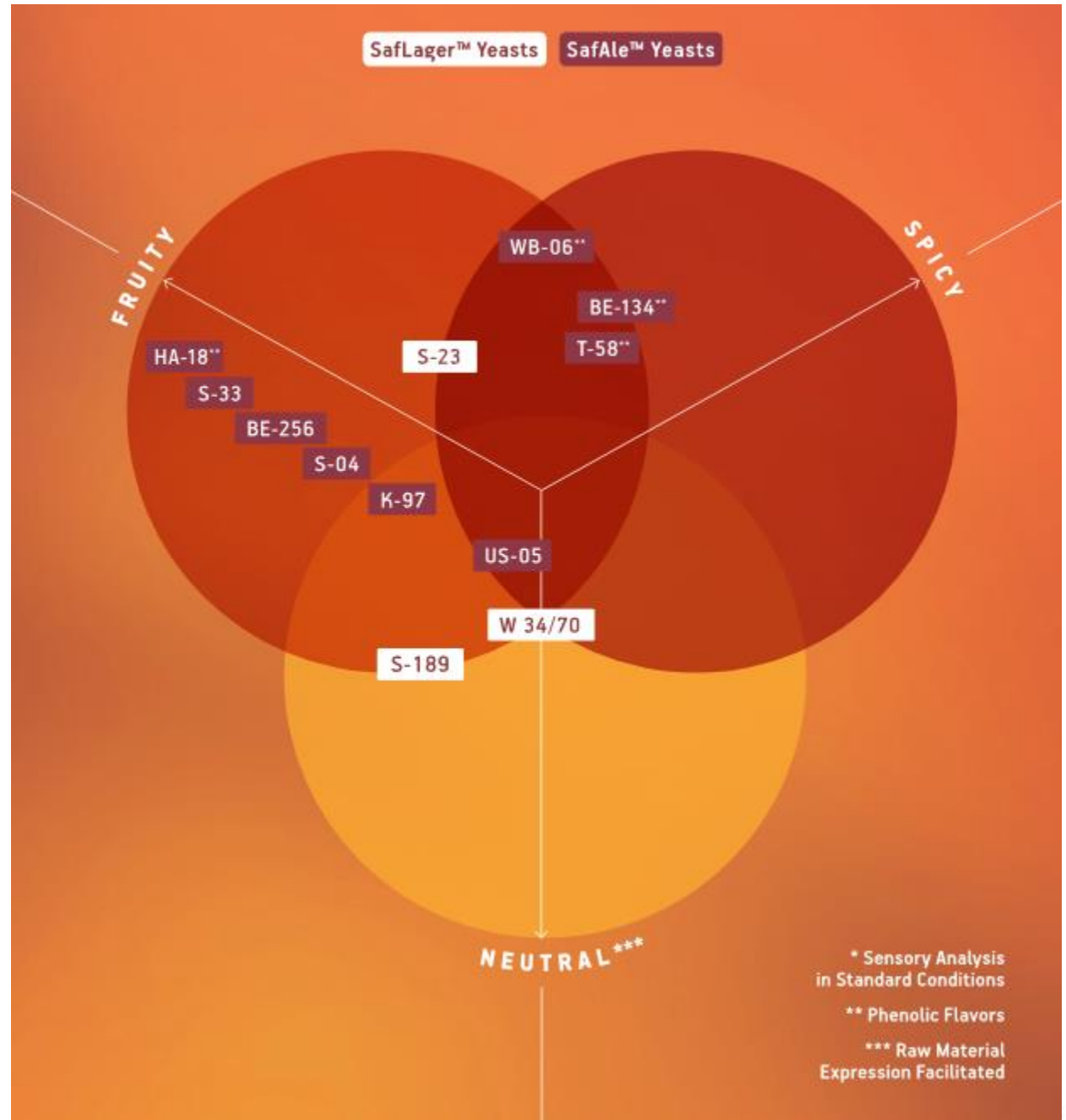
THIS STUDY HAS BEEN SET UP TO PICTURE AND COMPARE THE FLAVOR AND AROMA CHARACTERISTICS OF OUR YEAST STRAINS.

ALL HAVE BEEN TESTED IN THE SAME STANDARD CONDITIONS, WITH THE LOWEST POSSIBLE IMPACT OF OTHER INGREDIENTS, I.E. IN THE MOST NEUTRAL CONDITIONS.

WORT: 100% 2 ROW SPRING PILS MALT, 15°P
BITTERNESS: 25 BU WITH ISO-ALPHA-ACIDS (END OF BOILING)
PITCHING RATE: 50 G ADY/HL
FERMENTATION: 23°C, @ATM. P.

2.

BASELINE FLAVOURS & AROMAS



3.

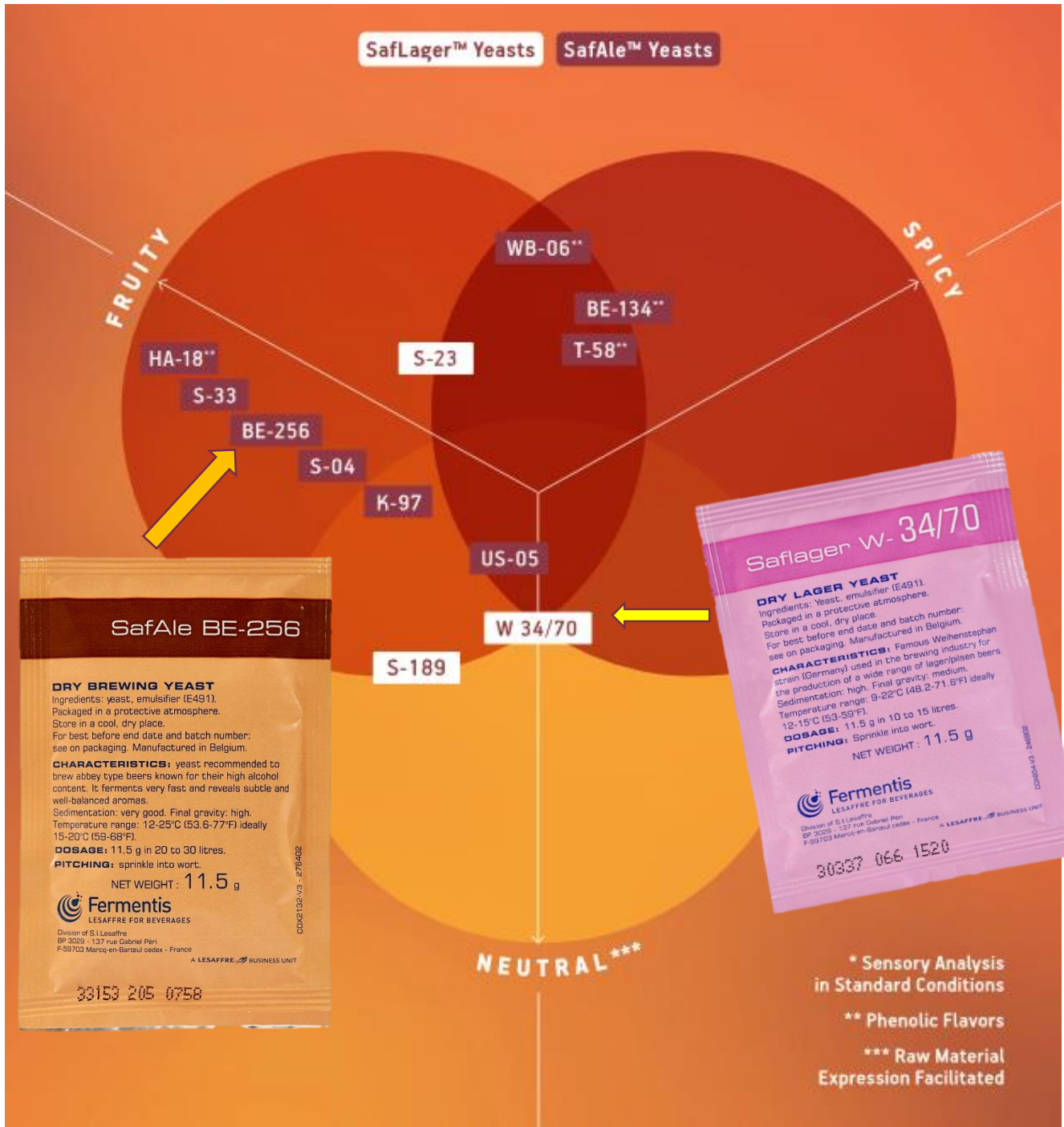
BE-256

G

W-34/70:

A CASE STUDY

MULTI-LINE?



* Sensory Analysis in Standard Conditions
 ** Phenolic Flavors
 *** Raw Material Expression Facilitated

3.

BE-256

G

W-34/70:

A CASE STUDY

Yeast Strain



°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

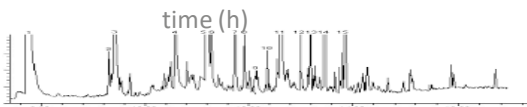
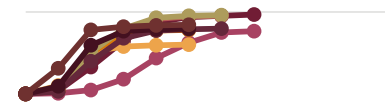
- All malt wort (pils)
- 28 EBU
- Direct pitching



Fermentation Performance

Volatiles

Sensory Analysis



Characterisation Study of a Lager
Strain.

SafLager W-34/70



THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION

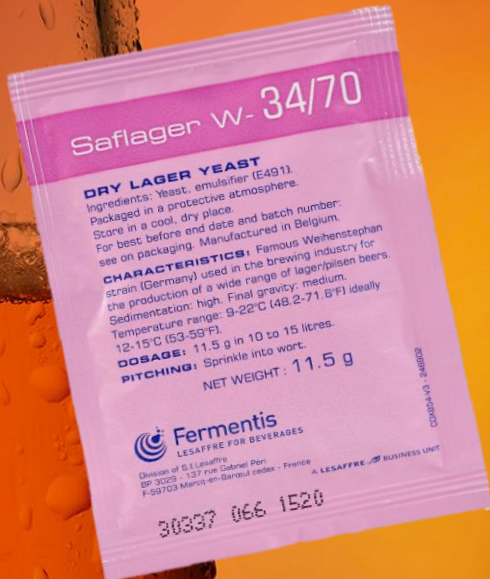


Fermentis

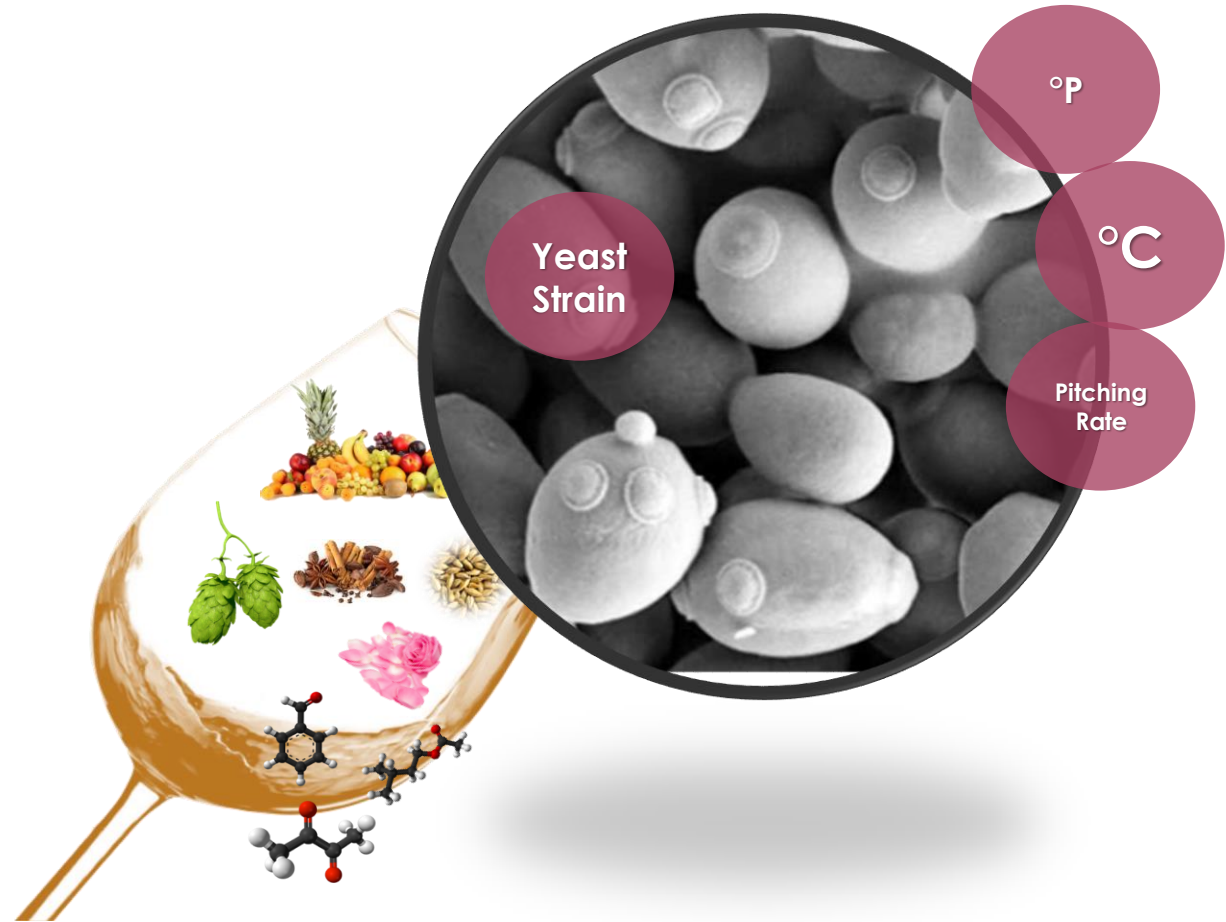
LESAFFRE FOR BEVERAGES

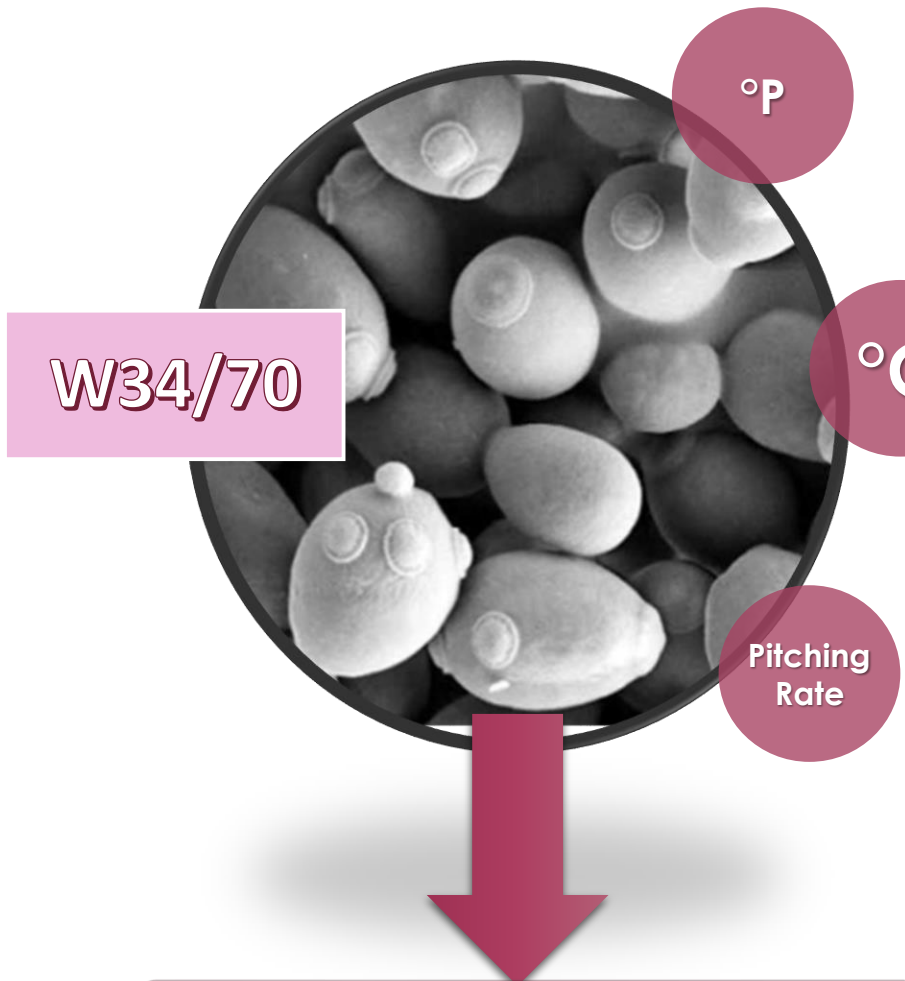
3.

SAFLAGER™
W-34/70



How could process parameters affect the **NEUTRAL** flavour profile produced by W-34/70?





W34/70

°P

°C

Pitching Rate

STUDIED CONDITIONS (14)

Condition code	Density (°P)	Temperature (°C)	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 ✓

- Evaluation of **fermentation flavor expression (QDA)**
- Blind taste - coded random samples (Average of 22 trained tasters per sample – pilot), 3 repetitions



name: _____
 Date: _____
 Sample: _____

Fermentis
LESAPPRE FOR BEVERAGE

Main Aromas and Flavours

Fruity (None to High)

Phenolic (None to High)

Alcohols (None to High)

Floral (None to High)

Sulphy notes (None to High)

Other OFF NOTES (None to High levels)

Main Taste / Mouthfeel notes

Sweet (None to High)

Acidity (None to High, viscous)

Body (Low, dry to High, viscous)

Bitter (None to High)

Warmth (alcohol) (None to High, warm)

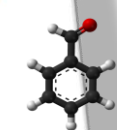
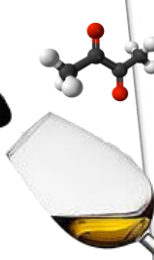
Carbonation (None to High, sparkling)

Odour / Aroma / Flavour

Ticked when its perceived:

	Attributes				Others
Fruity	<input type="checkbox"/> Fruity (general)	<input type="checkbox"/> apple	<input type="checkbox"/> banana, pear	<input type="checkbox"/> tropical	<input type="checkbox"/>
Floral	<input type="checkbox"/> Floral (general)	<input type="checkbox"/> Rose like			<input type="checkbox"/>
Phenolics	<input type="checkbox"/> Spicy (general)	<input type="checkbox"/> clove-like	<input type="checkbox"/> plastics	<input type="checkbox"/> medicinal	<input type="checkbox"/>
Sulphy	<input type="checkbox"/> yeasty, meaty	<input type="checkbox"/> DMS, Cooked Veg.	<input type="checkbox"/> H ₂ S, Rot, #BBX	<input type="checkbox"/> mercaptans	<input type="checkbox"/>
Off notes	<input type="checkbox"/> Green apples (acetaldehyde)	<input type="checkbox"/> Solvent	<input type="checkbox"/> Diacetyl (butter)	<input type="checkbox"/> Oxidation (metallic, papery, etc)	<input type="checkbox"/>

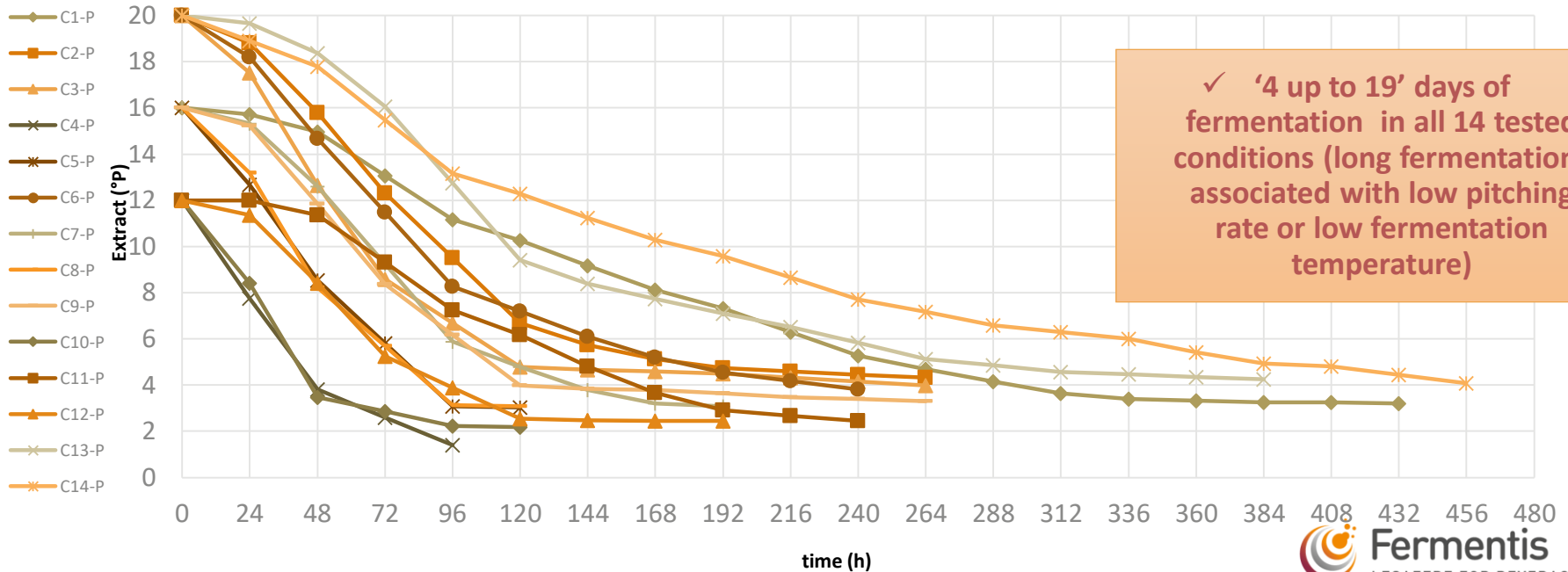
Other notes: _____



FERMENTATION PERFORMANCE

All conditions

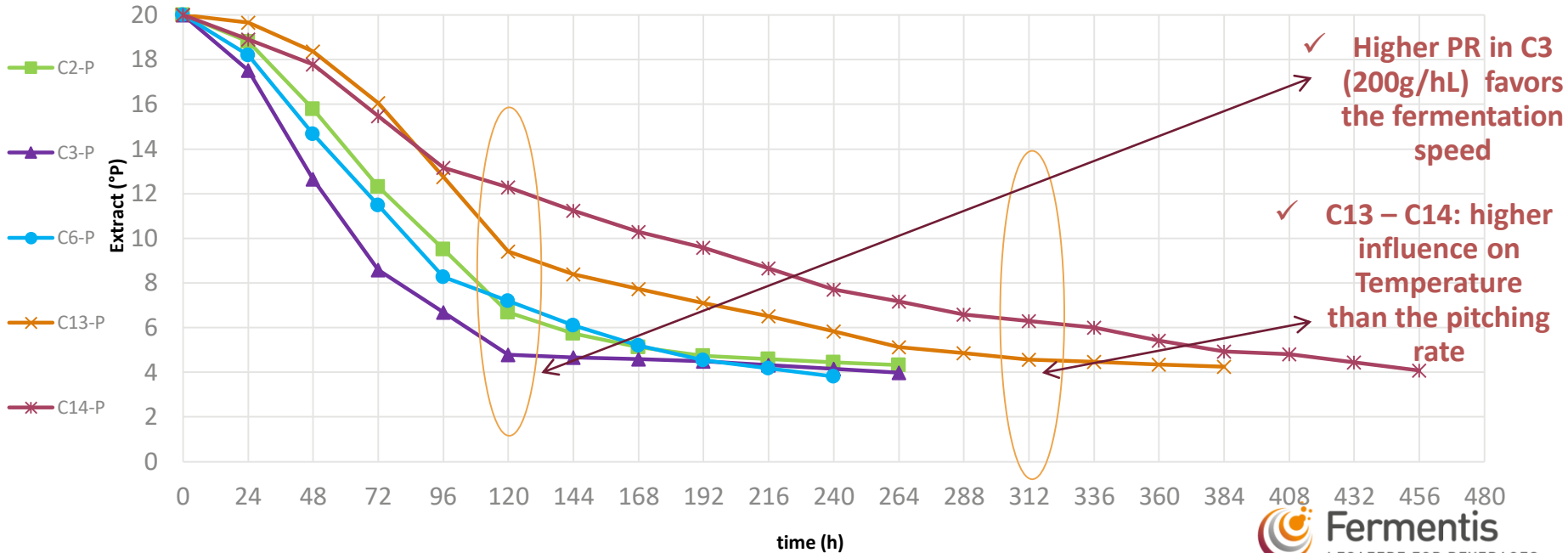
Conditions	Density (°P)	Temperature (°C)	Pitching rate (g/hL)	Duration (h)	Ethanol (ABV)
C1-P	16	12	50	432	7,03
C2-P	20	16	100	264	8,83
C3-P	20	16	200	264	8,4
C4-P	12	20	50	96	4,84
C5-P	16	20	50	120	7,17
C6-P	20	20	50	240	9,16
C7-P	16	20	25	192	7,31
C8-P	16	20	100	120	7,33
C9-P	16	16	100	264	7,38
C10-P	12	20	100	120	5,58
C11-P	12	12	25	240	5,41
C12-P	12	16	50	192	5,43
C13-P	20	16	25	384	8,99
C14-P	20	12	100	456	8,95



FERMENTATION PERFORMANCE

20°P

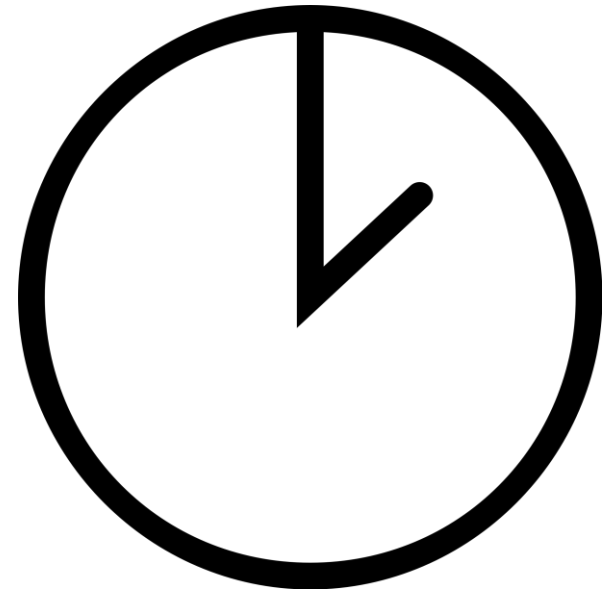
Conditions	Density (°P)	Temperature (°C)	Pitching rate (g/hL)	Duration (h)	Ethanol (ABV)
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C2-P	20	16	100	264	8,83
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C12-P	12	16	50	192	5,43
C13-P	20	16	25	384	8,99
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CONCLUSION PART 1:



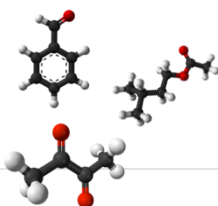
**THE HIGHER THE DENSITIES,
THE HIGHER FERMENTATION
TIME**



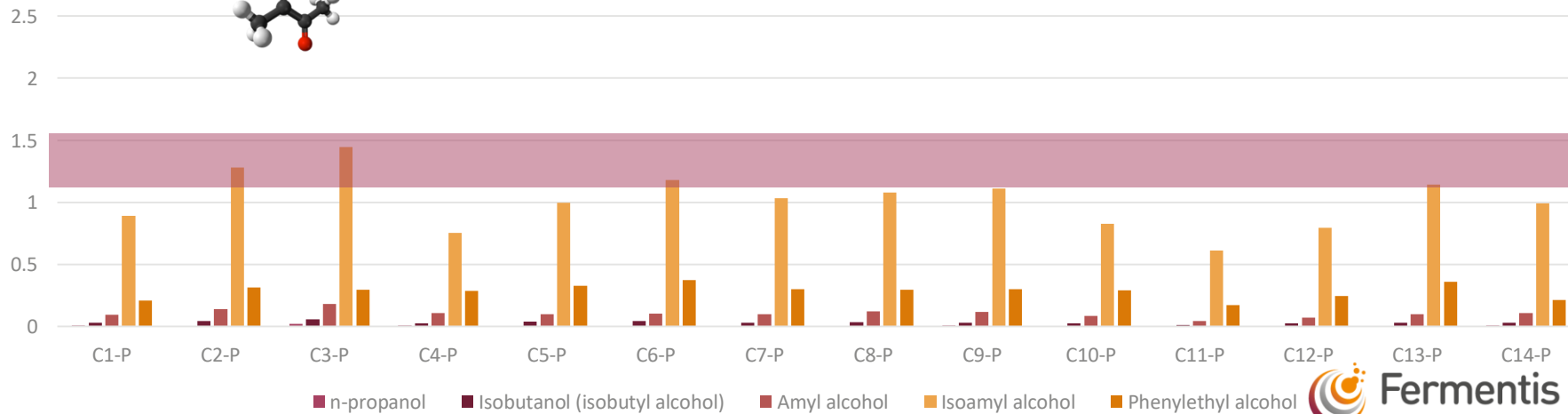
**THE HIGHER THE TEMPERATURE OF
FERMENTATION, THE LOWER
FERMENTATION TIME**



VOLATILES – ALCOHOLS in Flavor Units



Alcohols (Flavor Units)

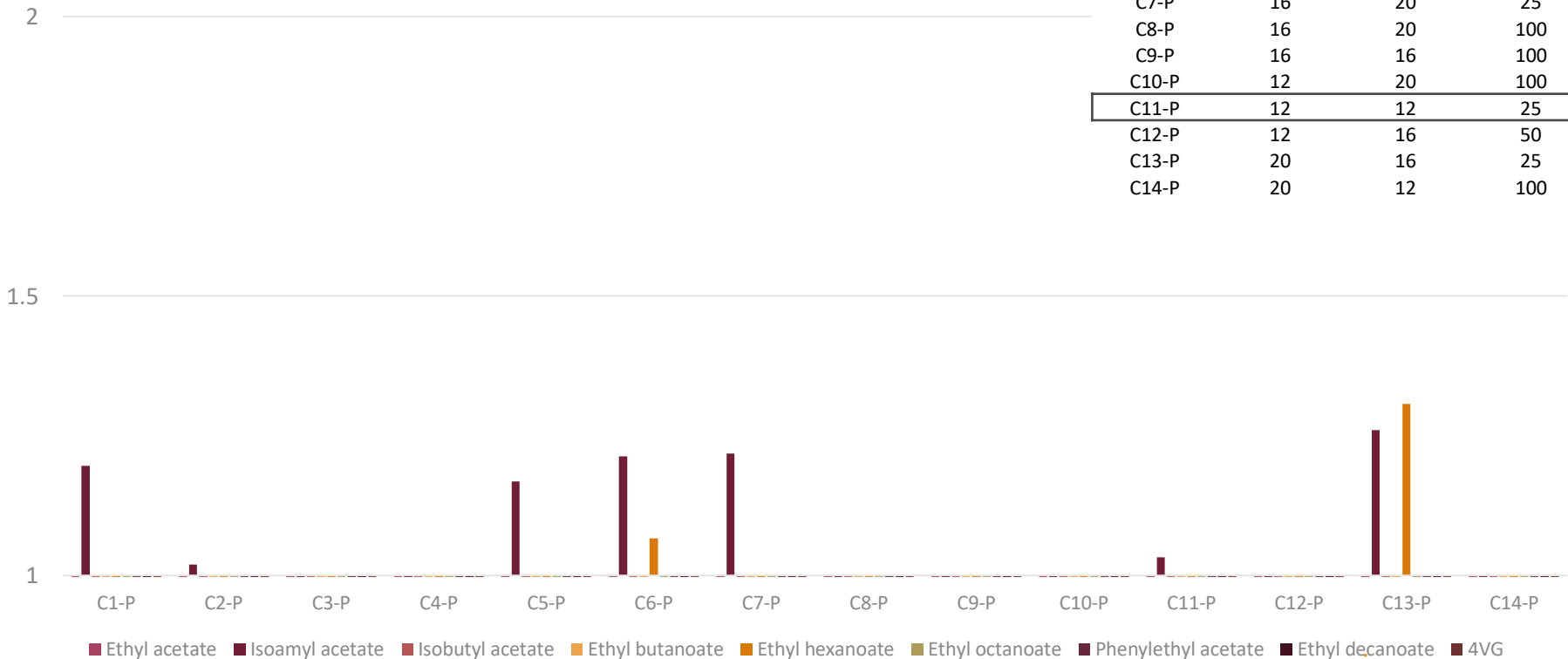


VOLATILES – ESTERS W3470

✓ Ethyl hexanoate and Isoamyl Acetate the most important esters produced by W3470 – but in all conditions, at a minor impact on flavor expression

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

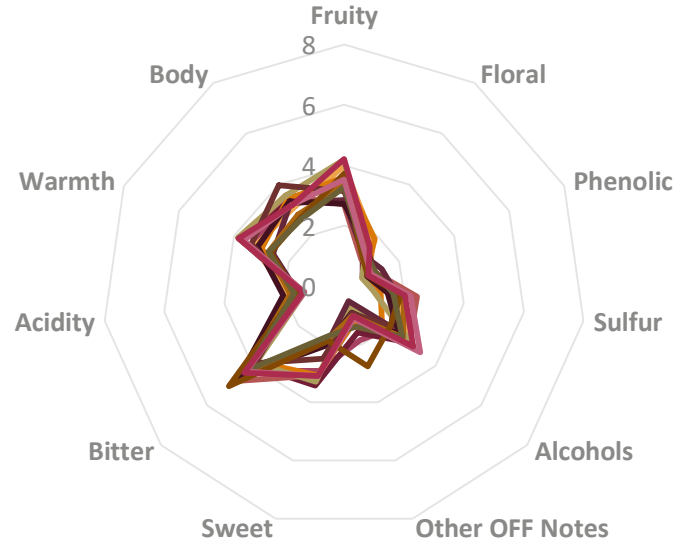
Esters (Odor Units)



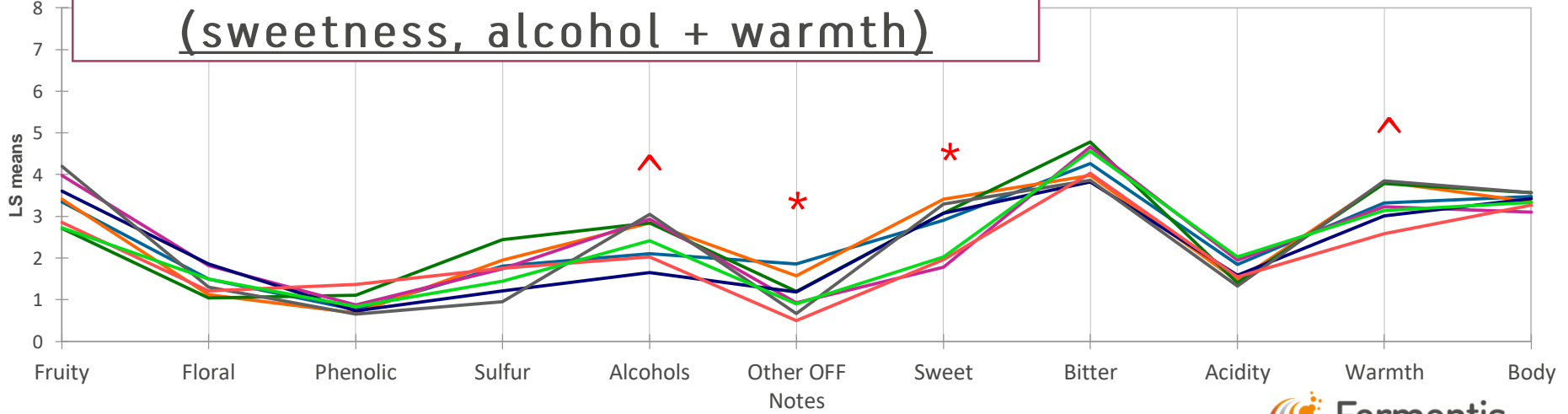
PILOT TRIALS

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

— 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



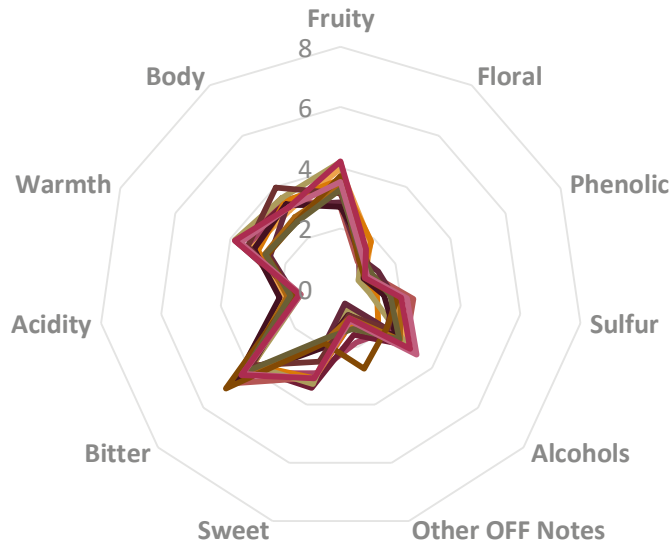
Statically relevancy: density related (sweetness, alcohol + warmth)



— C1-P
 — C2-P
 — C3-P
 — C4-P
 — C5-P
 — C6-P
 — C7-P
 — C8-P

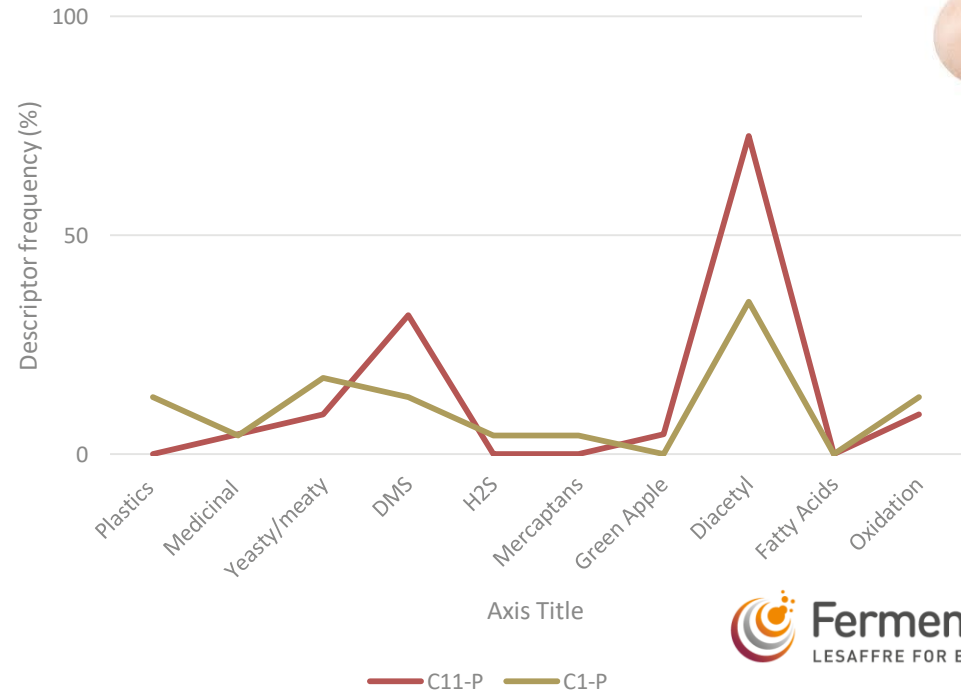
PILOT TRIALS

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




Off notes: perceived
 at LOWER
Fermentation
temperature and
lower PR

Off notes





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


CONCLUSION PART 2:



**THE HIGHER THE DENSITIES,
THE HIGHER VOLATILES
PRODUCTION – BUT WITH
MINOR SENSORY IMPACT**




**THE LOWER THE FERMENTATION
TEMPERATURES, THE HIGHER THE
RISK OF SLOW FERMENTATION AND
OFF NOTES**





CONCLUSIONS / SUMMARY OF SAFLAGER W34/70

 **THE HIGHER THE GRAVITY,**
THE HIGHER THE VOLATILES 
BUT WITH MINOR SENSORY IMPACT

THE LOWER THE FERMENTATION TEMPERATURE,
THE HIGHER THE RISK OF SLOW FERMENTATION
AND OFF-NOTES, ESPECIALLY DIACETYL 

 **THE HIGHER THE GRAVITY,**
THE HIGHER THE FERMENTATION TIME 

 **THE HIGHER THE FERMENTATION TEMPERATURE,**
THE LOWER THE FERMENTATION TIME
WITHOUT COMPROMISING BEER QUALITY 

DENSITY HAS THE GREATEST IMPACT IN THE PERFORMANCE OF THIS STRAIN.

Yeast flavor expression in the New England IPA. (NEIPA)



THE OBVIOUS CHOICE FOR BEVERAGE FERMENTATION

RECIPE



Yeasts Studied

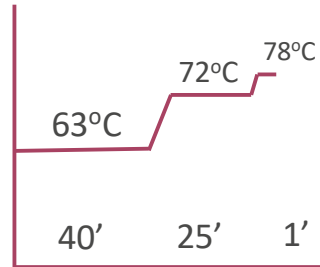
S33
S04
US05
K97
BE256
BE134
T58
S189
S23

Wort

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



Mash



Hops

Citra
Simcoe
Mosaic

1 kg / hL

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

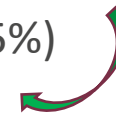
Fermentation:

23°C

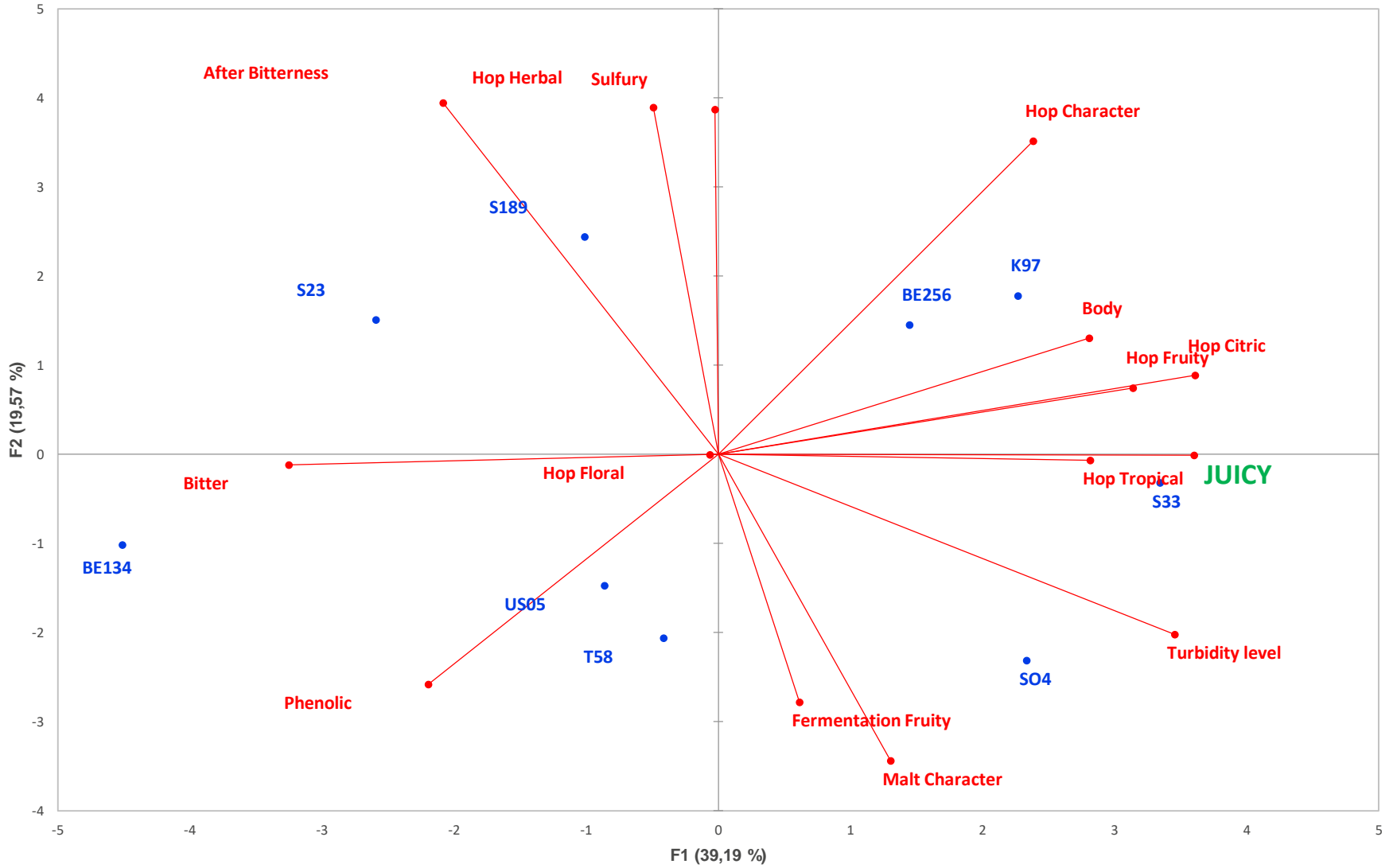
Maturation (25%)

10°C

Centrifugation

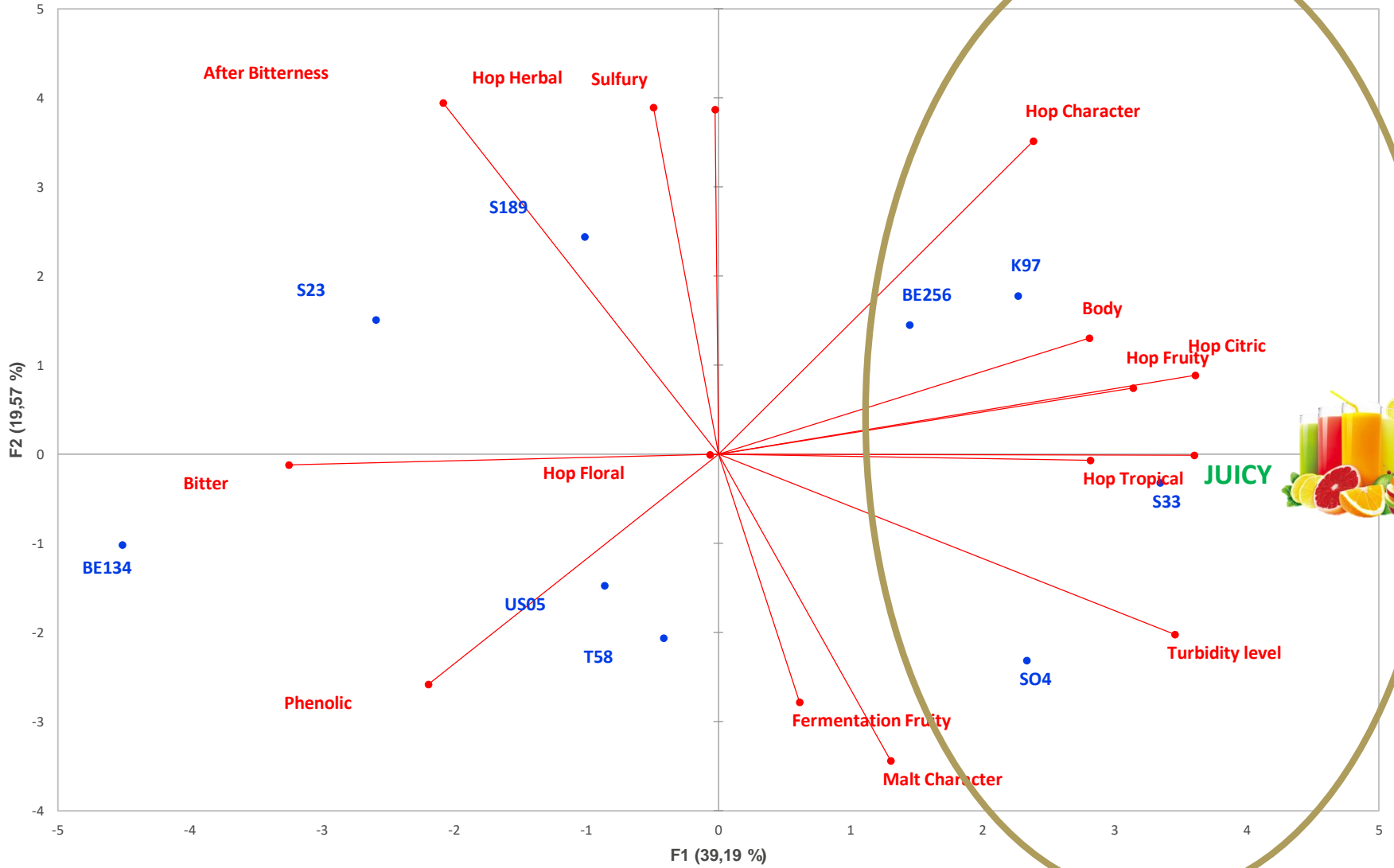


Biplot (axes F1 and F2: 58,75 %)



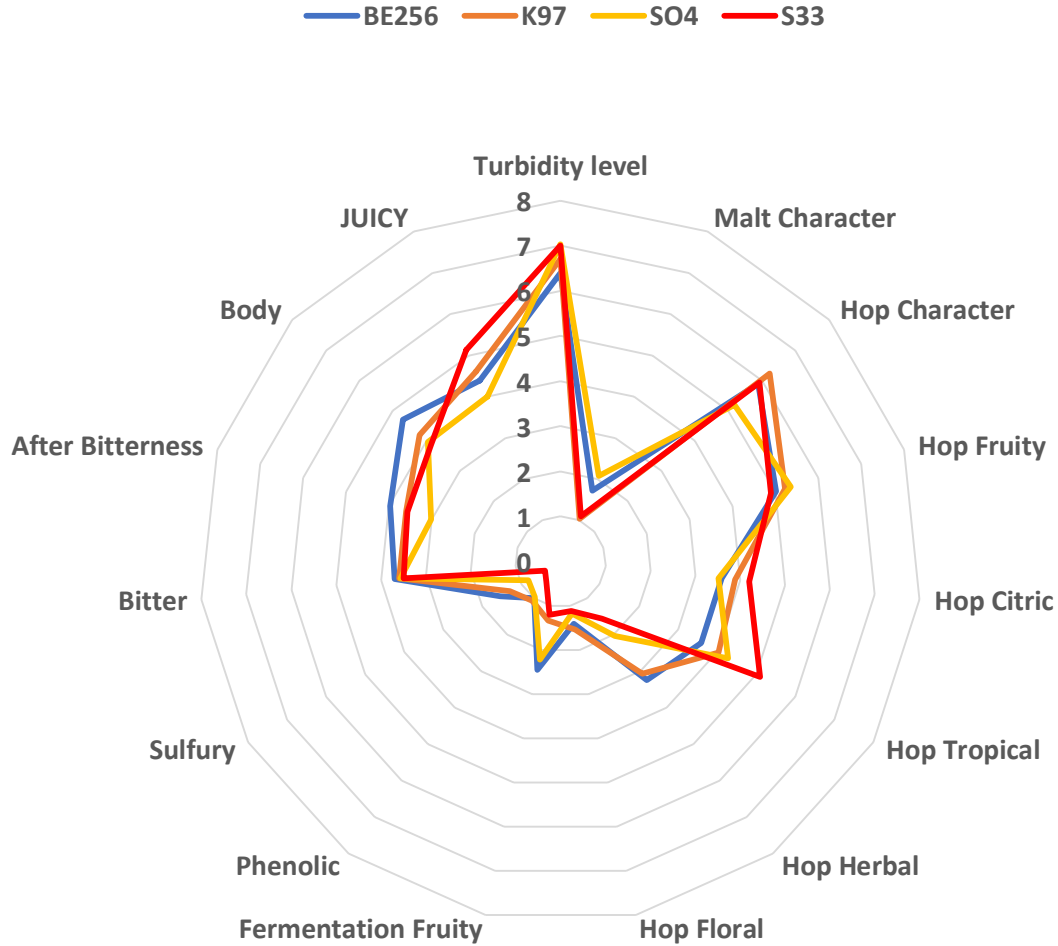
• Active variables • Active observations

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



• Active variables • Active observations

SENSORY CHARACTERISTICS



Rethink your NEIPA!

 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



THANK YOU FOR YOUR
ATTENTION!

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