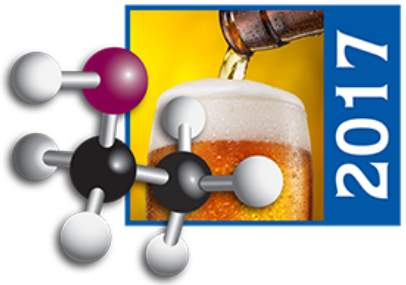
VICARD GENERATION 7



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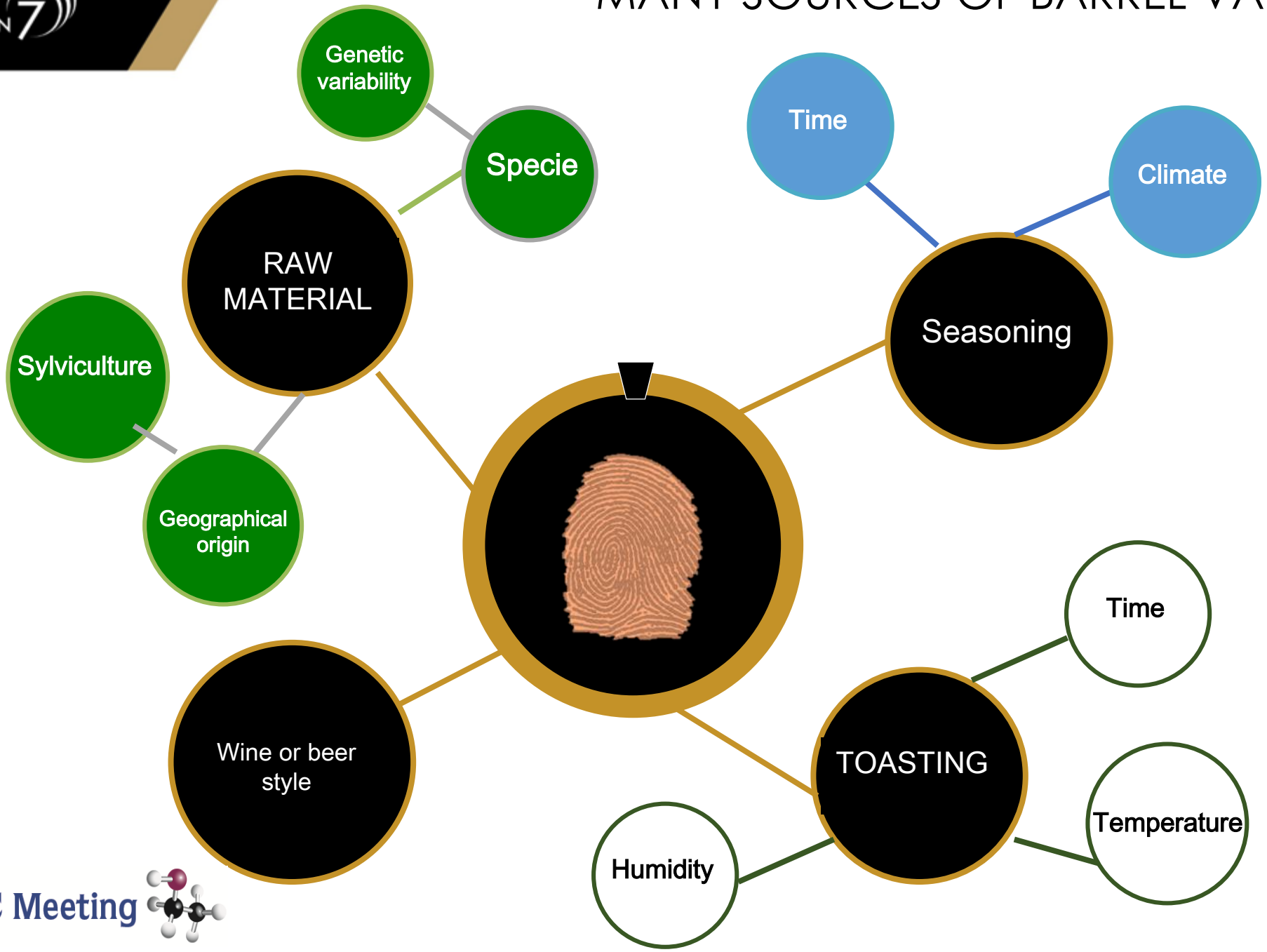
RELATIONSHIP BETWEEN WOOD TANNINS, TOASTING AND SENSORY OUTCOMES

Innovation + Quality Award 2016
Wine Business Monthly

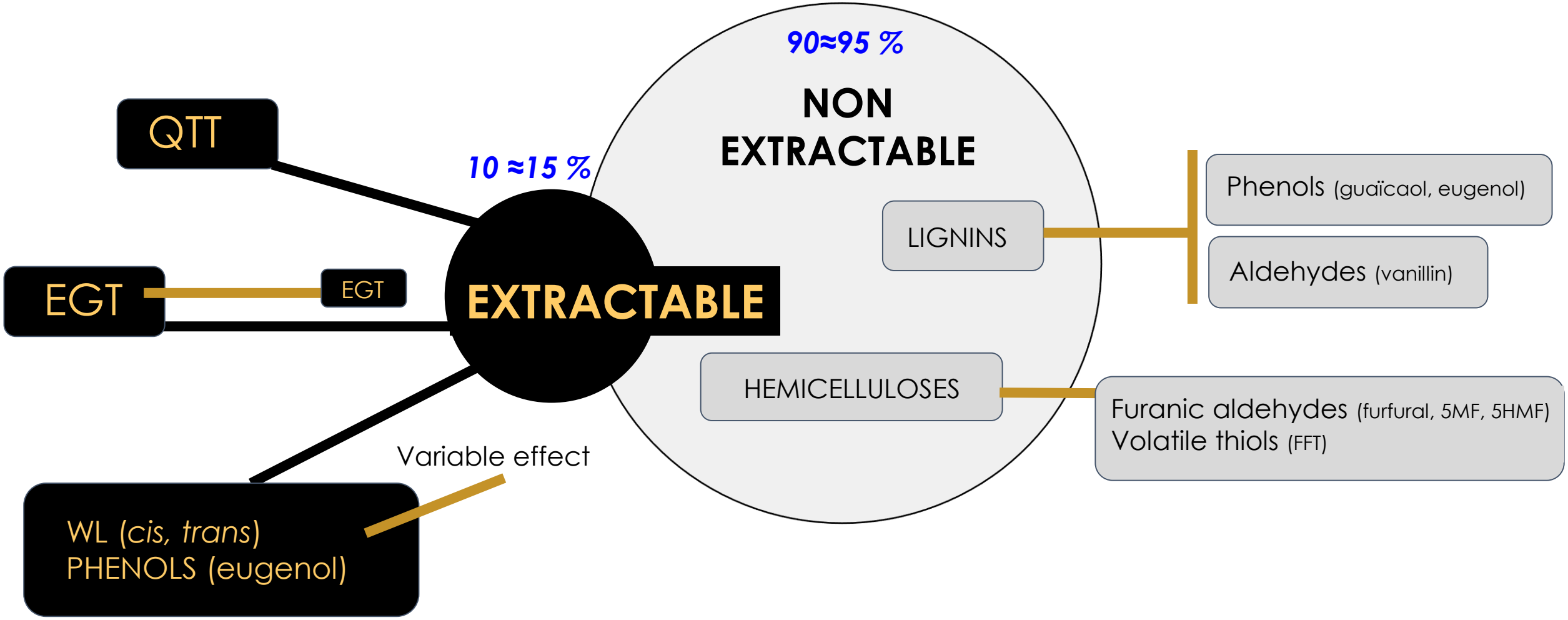
Jean-Charles VICARD
Dr. Marie-Laure Badet-Murat

VICARD GENERATION 7

MANY SOURCES OF BARREL VARIABILITY



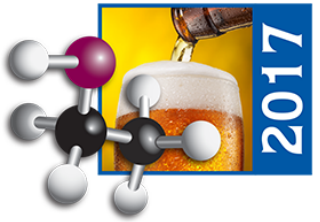
OAK WOOD CHEMISTRY



VICARD GENERATION 7

ISSUE #1

VARIATIONS IN TOASTING



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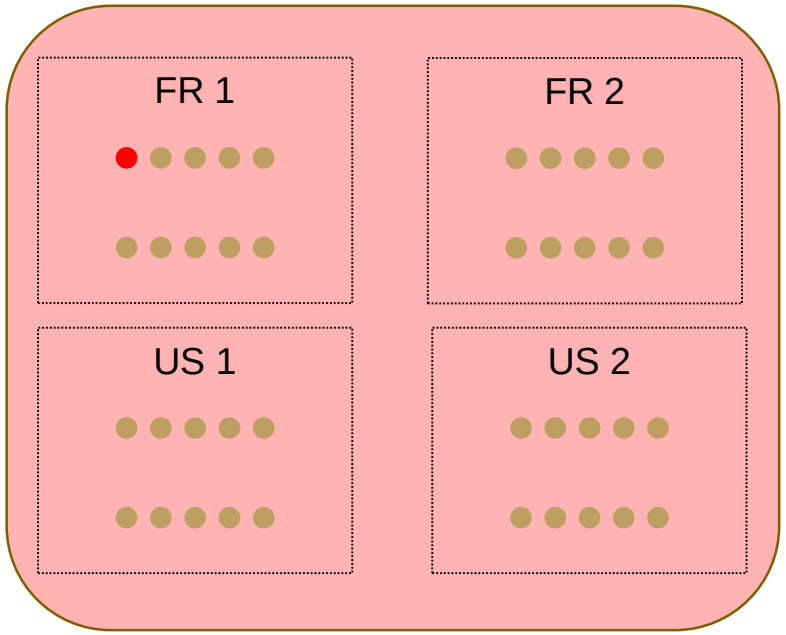
ISSUE #1: VARIABILITY AT THE END OF AGING

Barrel-to-Barrel Variation of Volatile Oak Extractives at the end of aging.

Adapted from Towey John et al., 1996, AJEV.

PROTOCOL



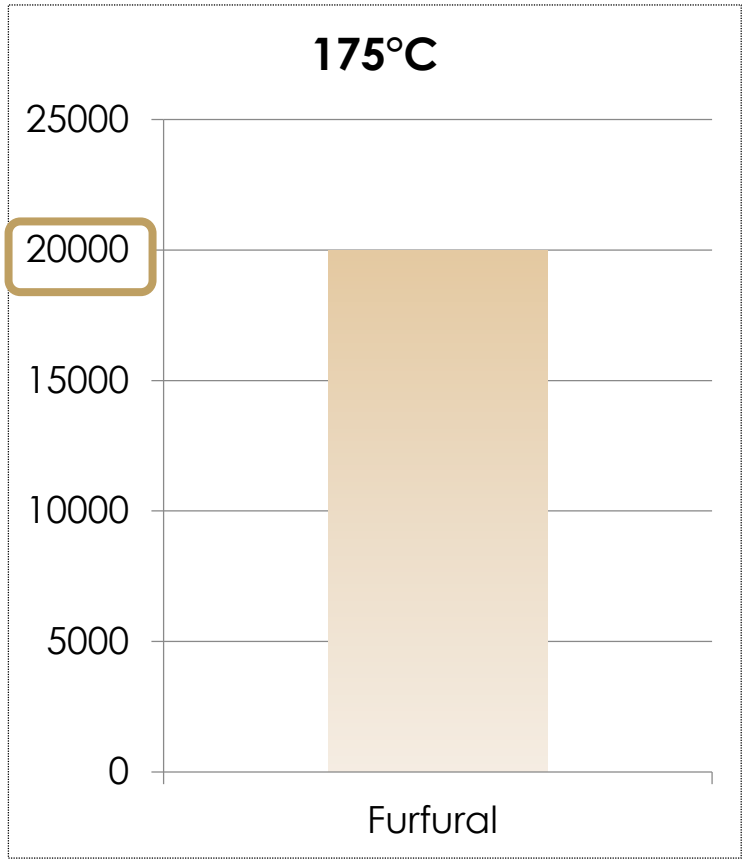
RESULTS

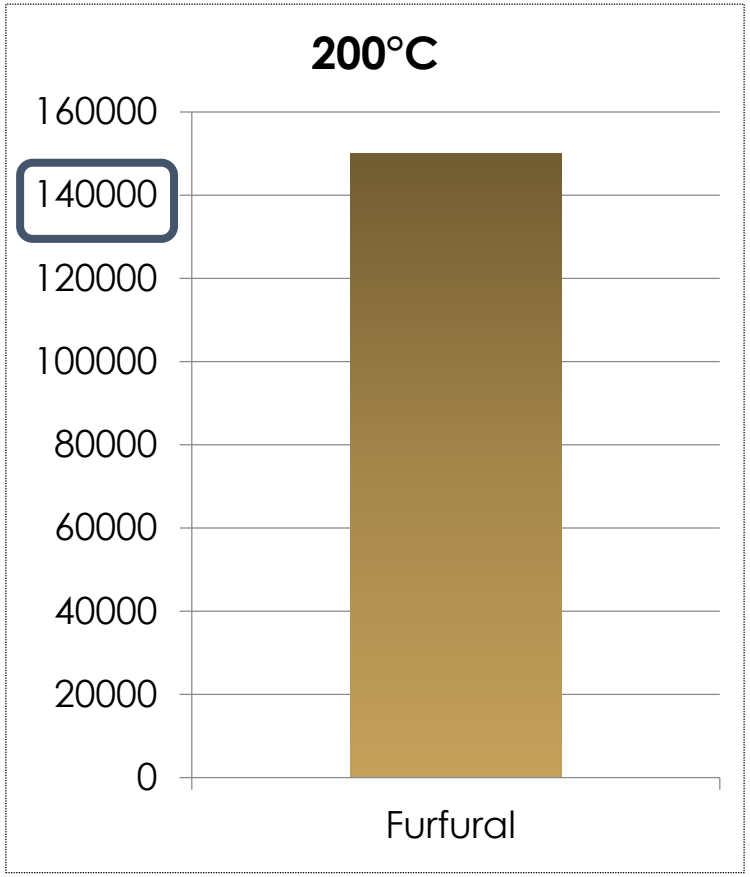
- 15 - 40% variation in major oak aromas within the same batch of 10 barrels with the same grain and toast.
- 1 barrel could yield chemical levels more than 50% different from the population!

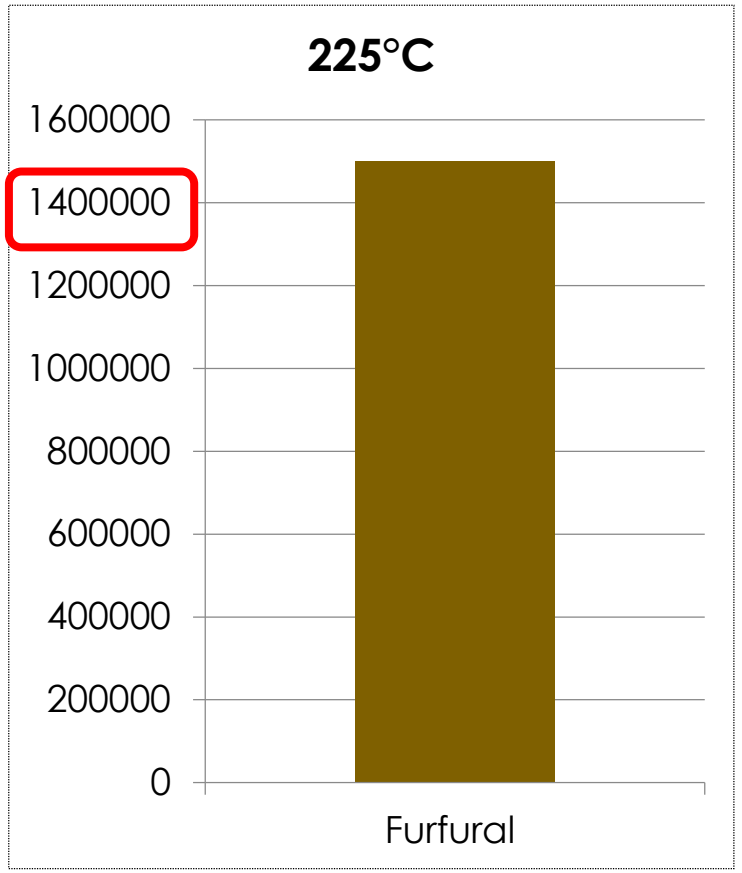
ISSUE # 1: VARIATIONS FROM TOASTING

"……maximum concentrations increased by approximately one order of magnitude with each 25 °C increase in toasting temperature"

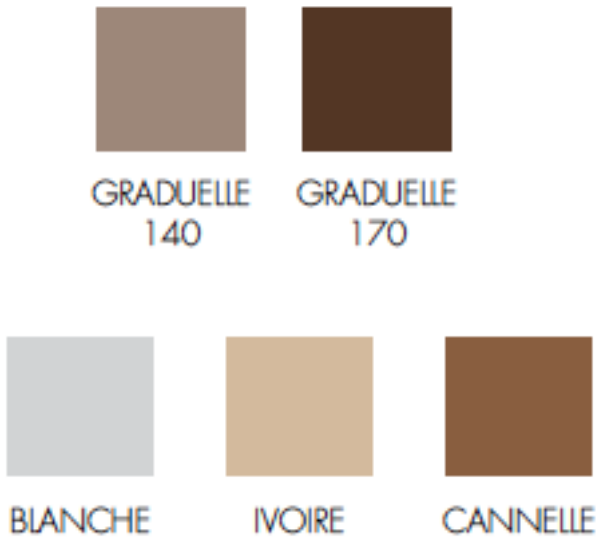
Farrell, R. R. et al. Real-Time Mass Spectrometry Monitoring of Oak Wood Toasting: Elucidating Aroma Development Relevant to Oak-aged Wine Quality. Sci. Rep. 5, 17334; doi: 10.1038/srep17334 (2015).

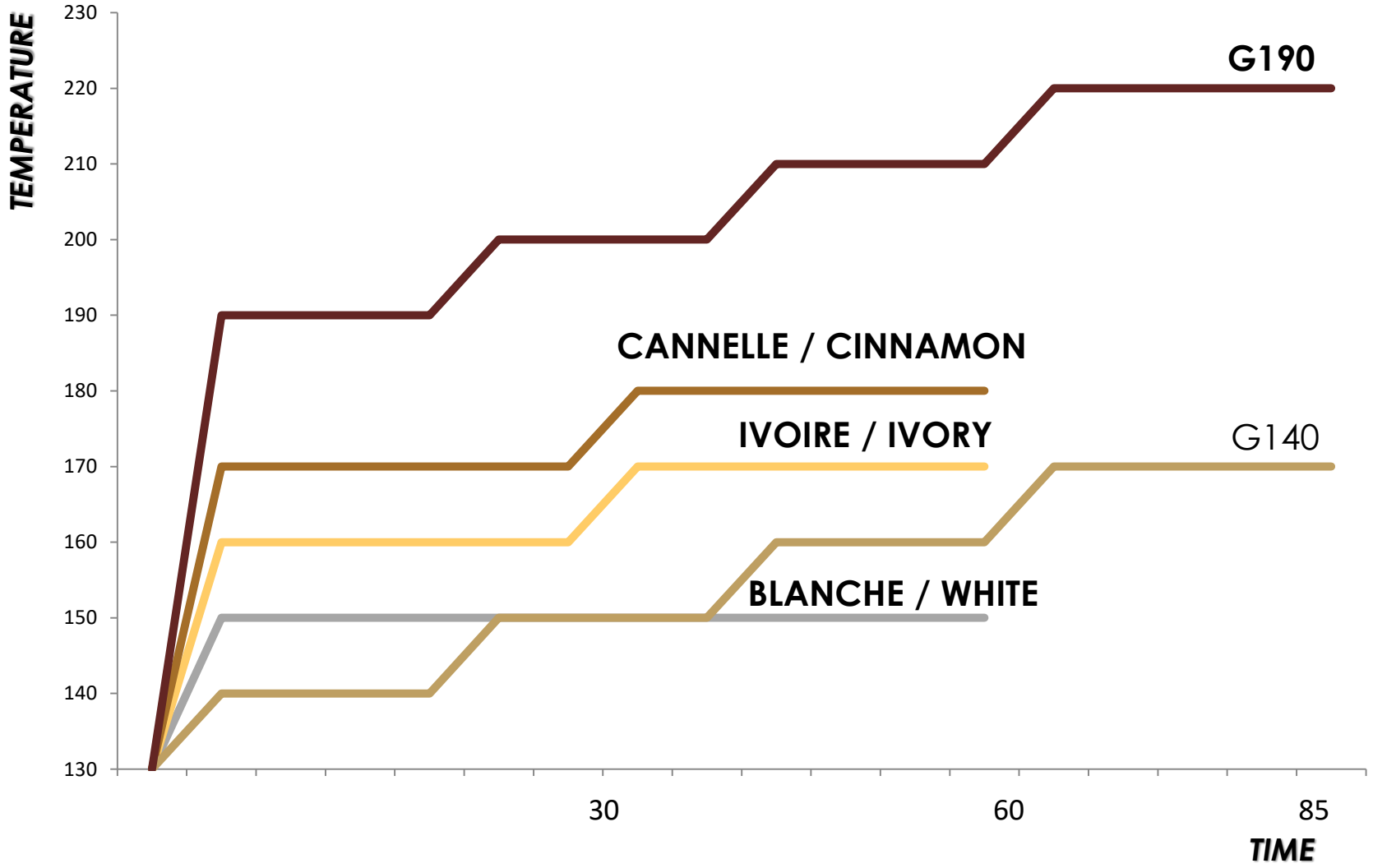






MOLECULAR TOASTING

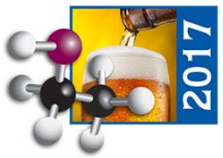




VICARD GENERATION 7

ISSUE #2

RAW MATERIAL VARIATION



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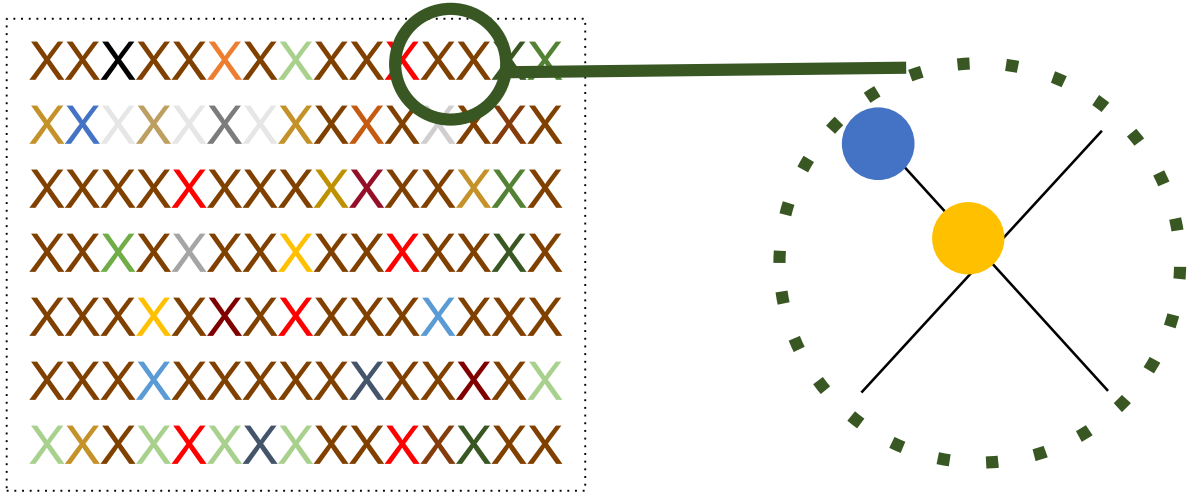
INTER-INDIVIDUAL

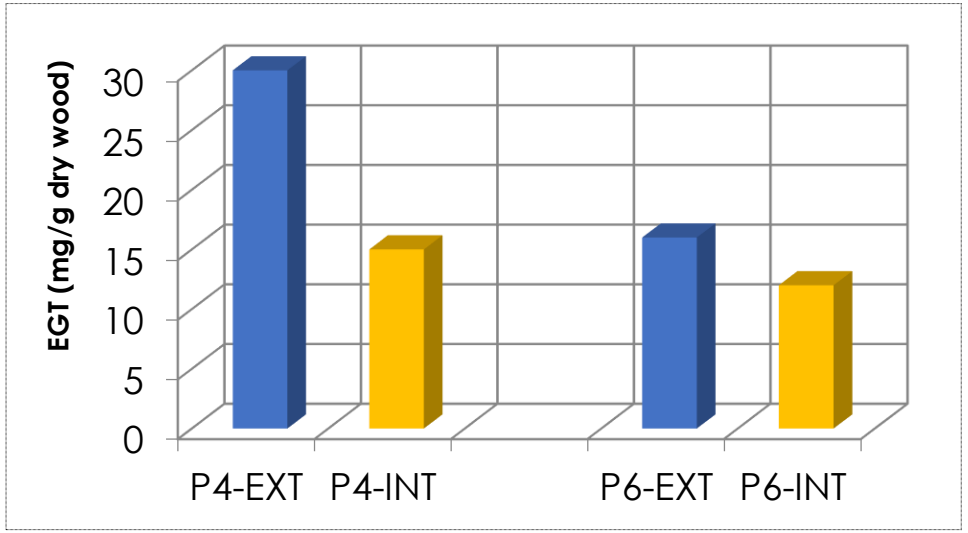


Snakkers, 2000 ; Doussot, 2000, 2002 ; Feuillat, 2003, Prida, 2006

FOREST

TREE

INTRA-INDIVIDUAL



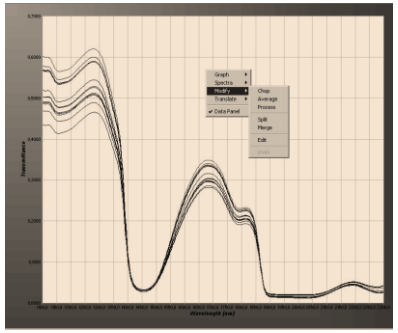
Masson et al, 1995, 1996 ; Mosedale et al., 1996

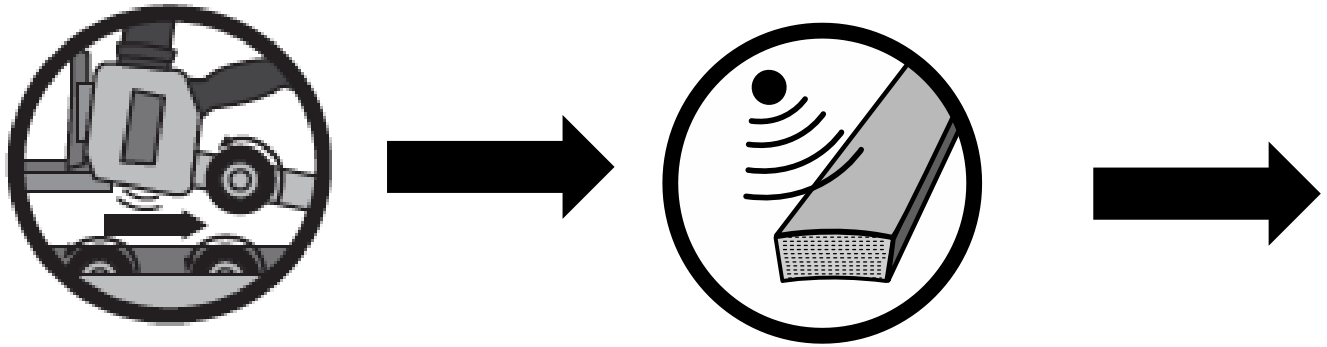
STAVES

DEFINITION: TANNIN POTENTIAL (TP)

➔➔ Measure **ellagitannin content** of **EACH STAVE, after seasoning and machining and** prior to toasting barrel using NIRS.

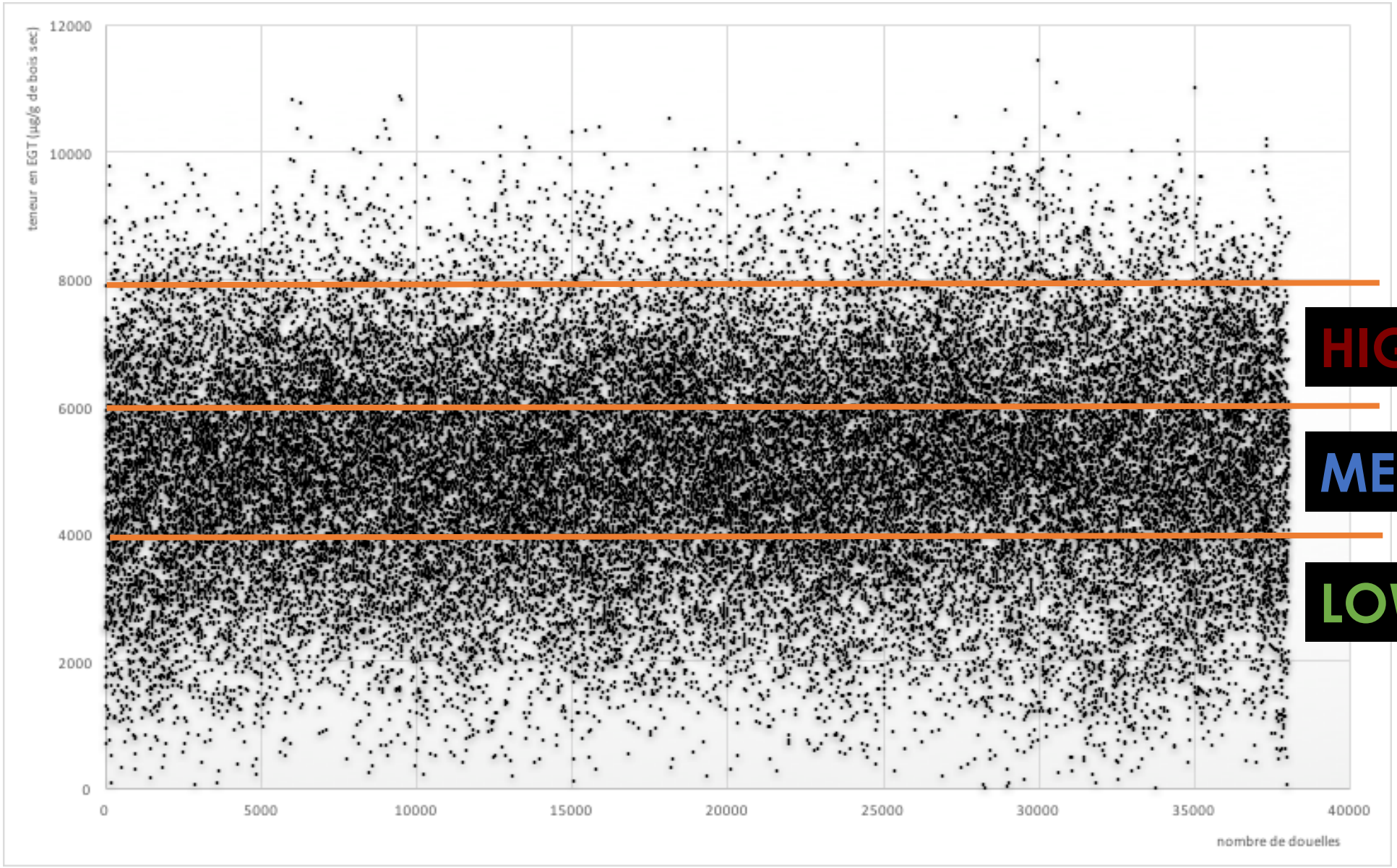
NIRS
Near infrared spectroscopy





TP	CODE	ELLAGITANNINS (µg / g of dry wood)
LOW	LTP	2000-4000
MEDIUM	MTP	4001-6000
HIGH	HTP	6001-8000

➔➔ 3 CLASSES OF TP= [Ellagitannins]



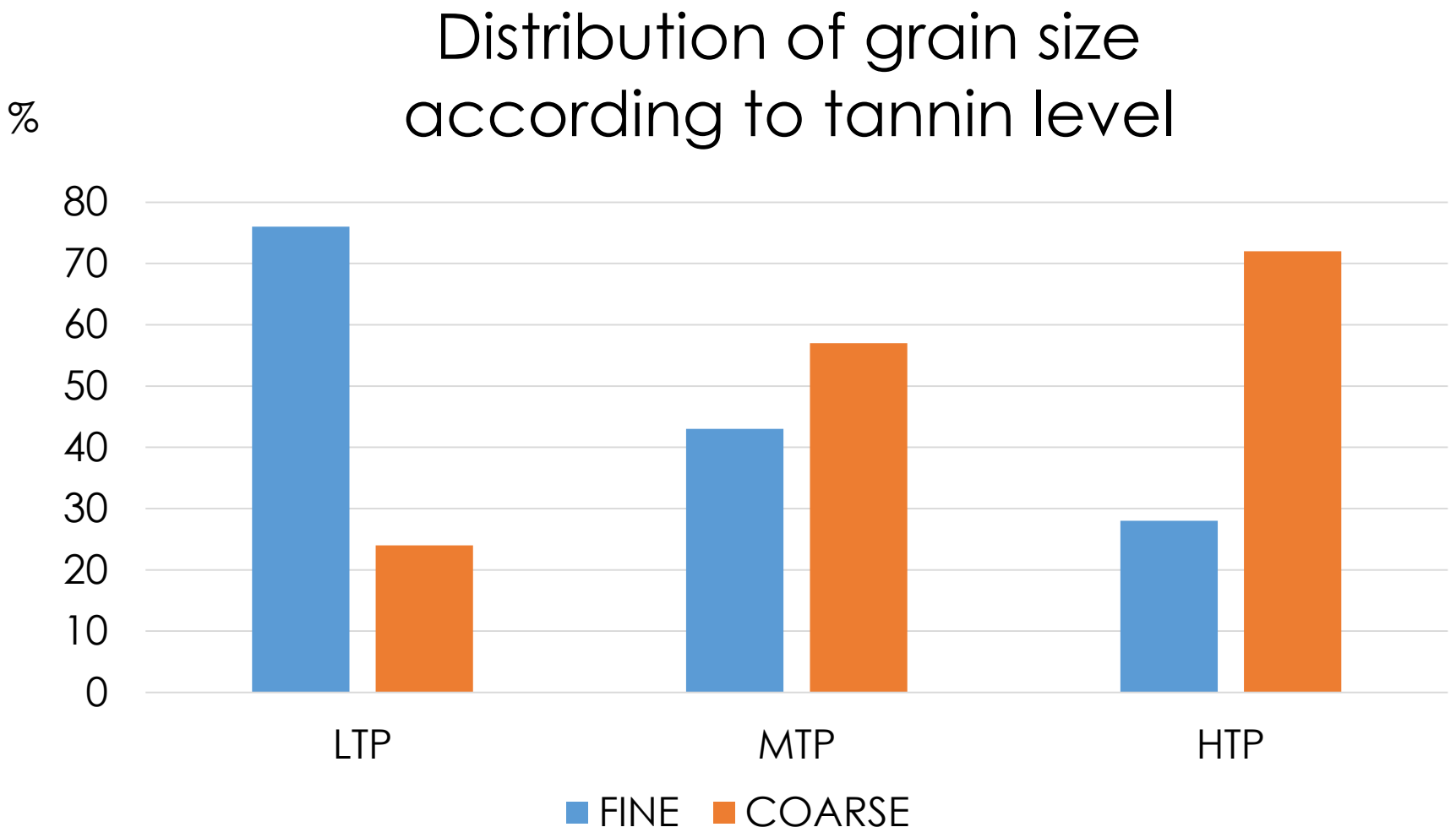
HIGH TP (HTP)

MEDIUM TP (MTP)

LOW TP (LTP)

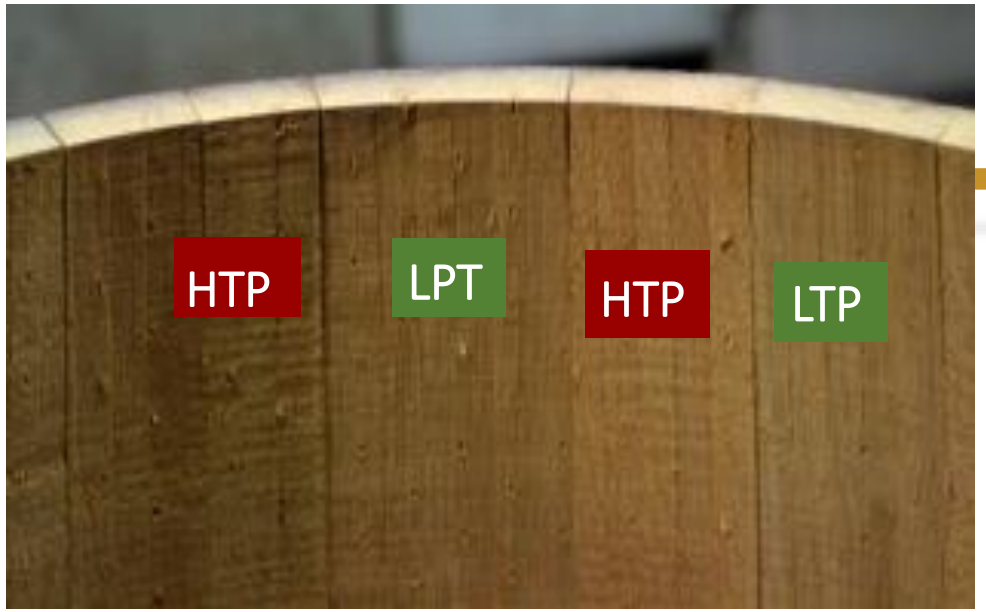
2017 ASBC Meeting

RELATION BETWEEN TP & GRAIN?



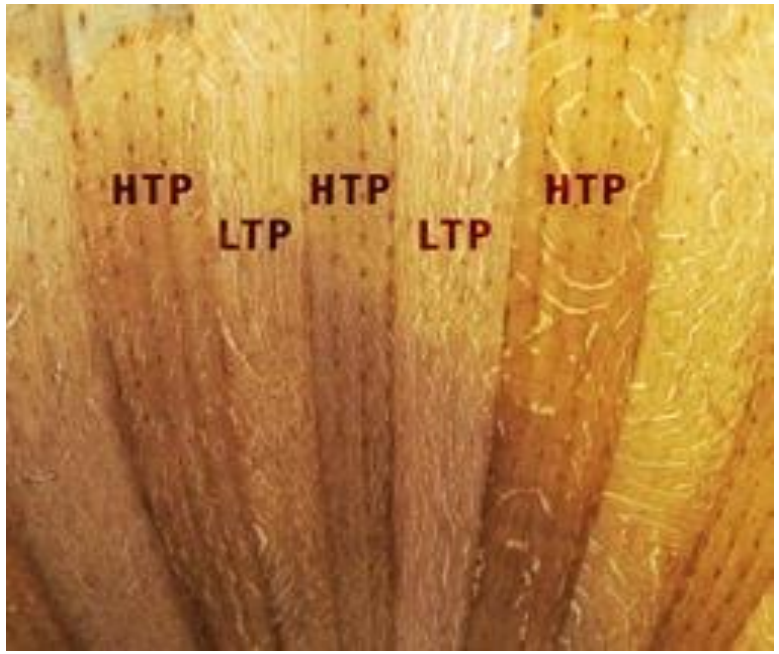
THE INFLUENCE OF TANNIN POTENTIAL REVEALED BY MOLECULAR TOASTING

UNTOASTED STAVES after STEAM BENDING (4 min)
Same origin, grain size and humidity level

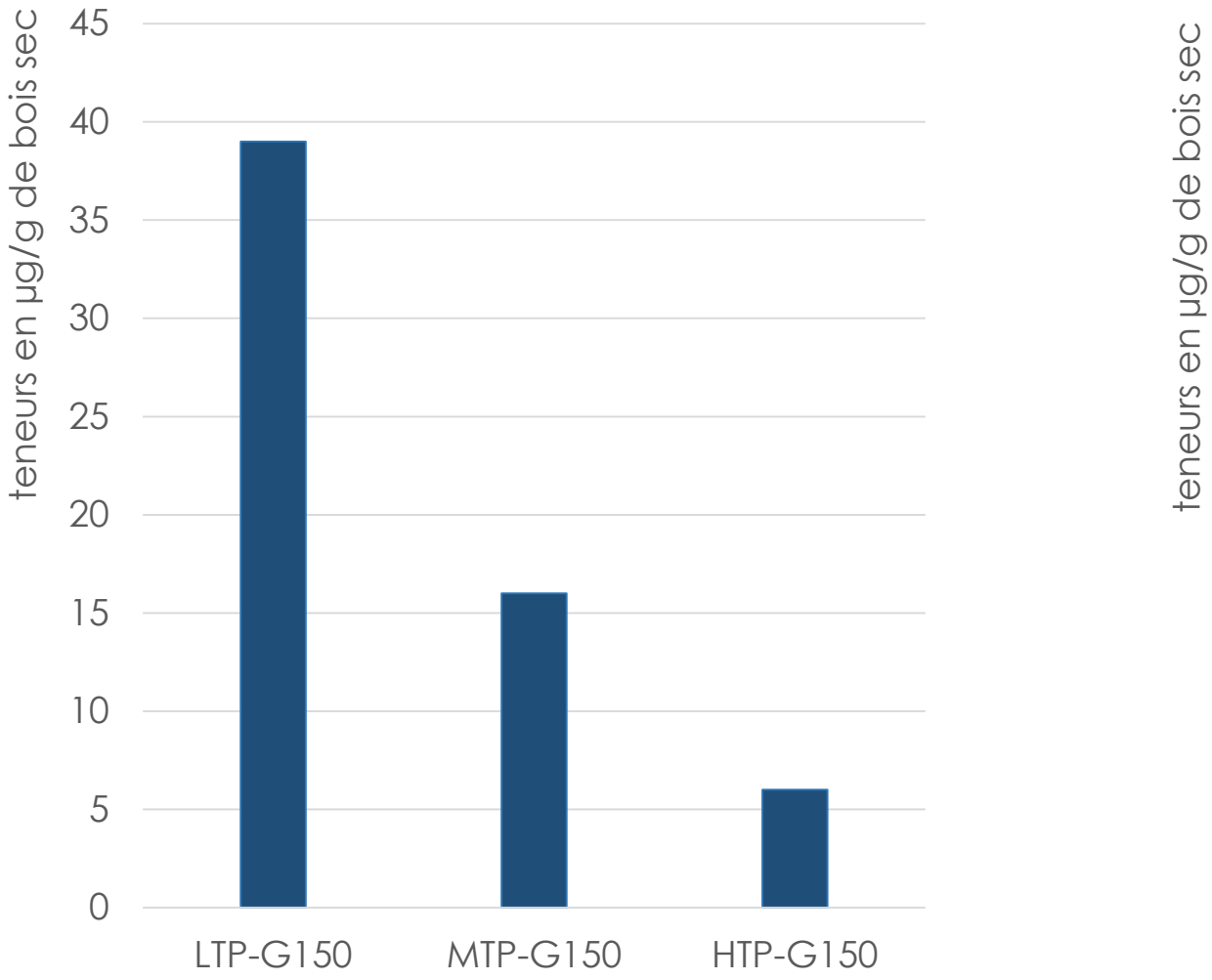


TOASTING

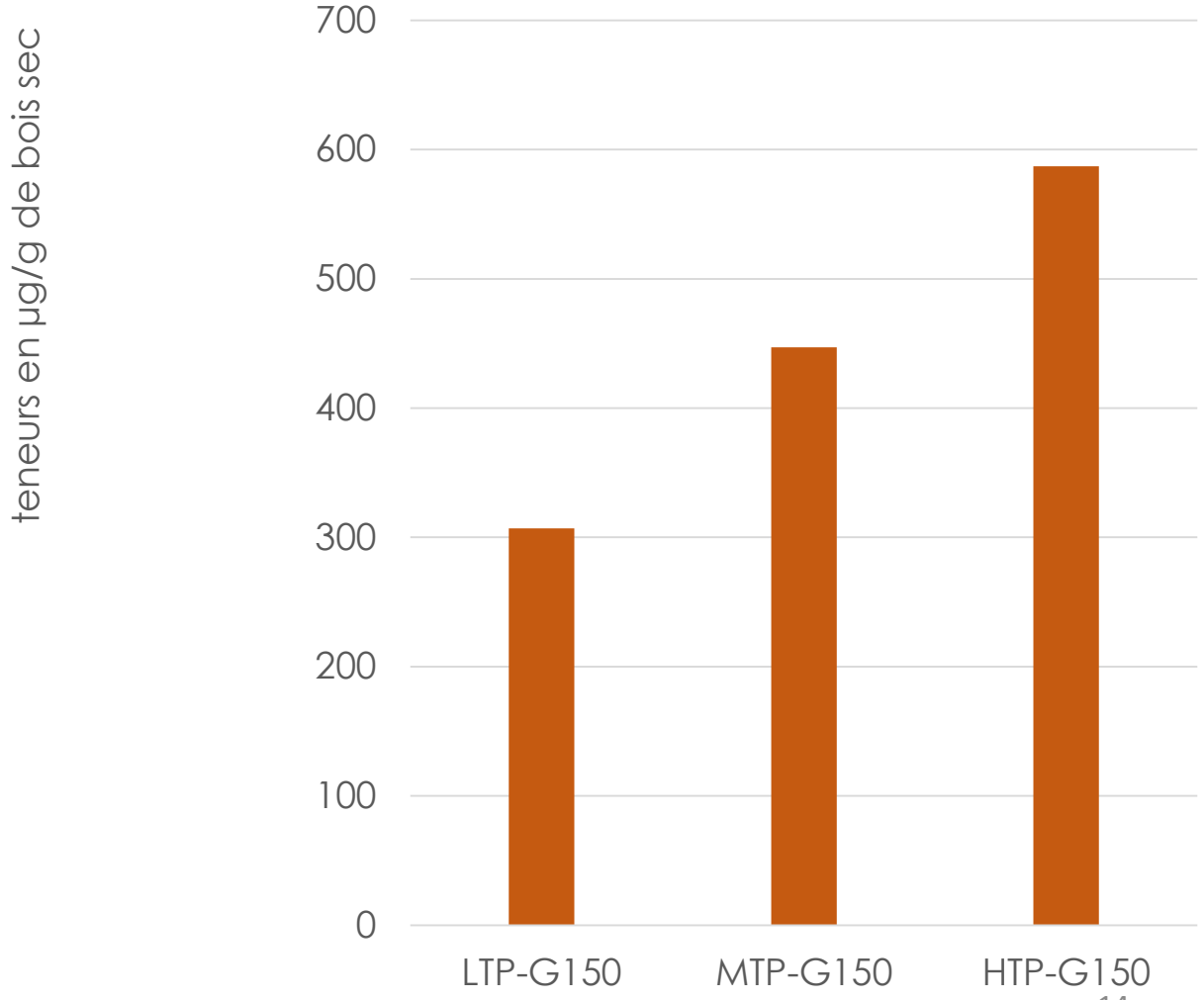
+/-3°C



WHISKEY LACTONE
Fresh oak and fruity notes



FURANIC ALDYHYDES/FURFURAL
Toasted notes



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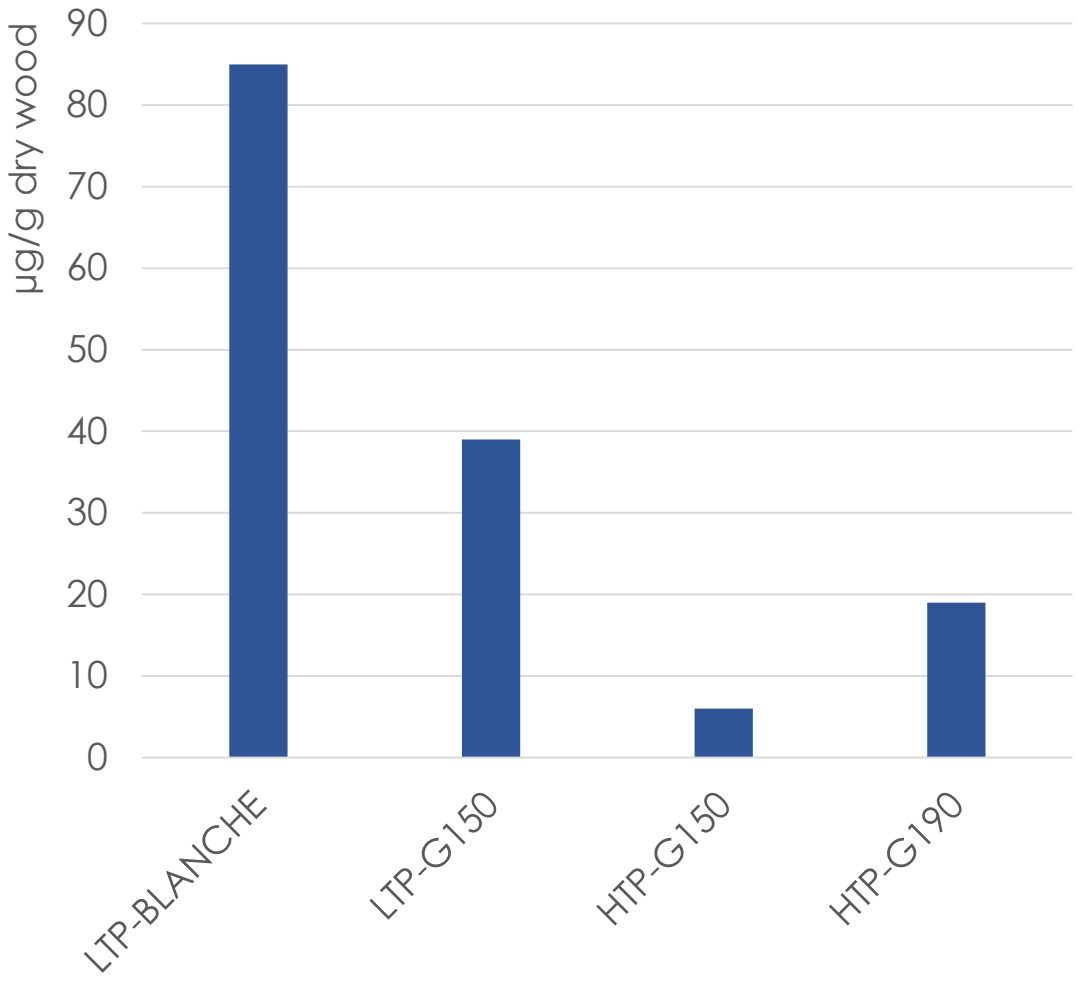
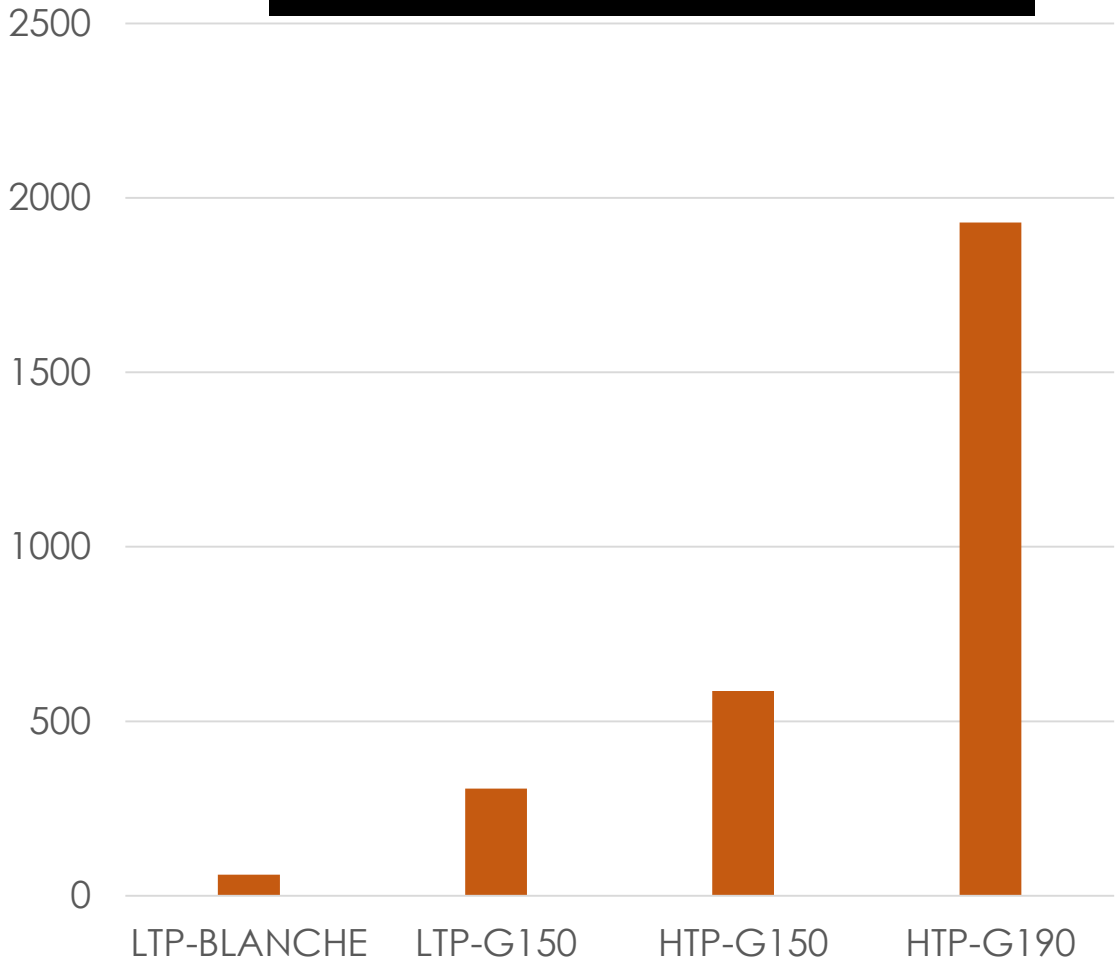


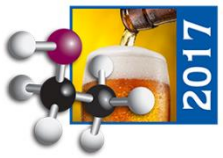
FURANIC ALDYHYDES/FURFURAL
Toasted notes



VICARD GENERATION 7

ISSUE #3

IMPACT OF GEOGRAPHICAL ORIGIN



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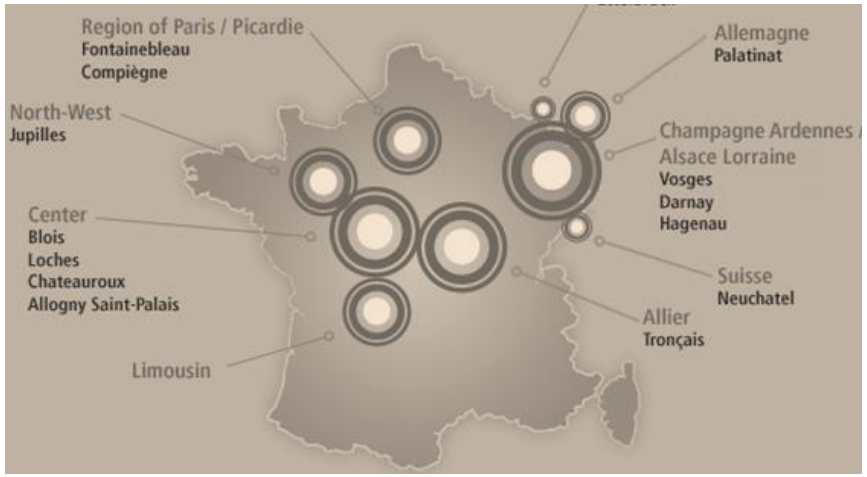
Trial done in collaboration with the ONF and Château LATOUR

Wood origin: France, 9 forests



Wood seasoning: 30 months

Wood toasting: **gradual 170 (G170)**

225L Barrels in DUPLICATE

TRIALS ON 2013 & 2014 VINTAGES

WINE: LATOUR BLEND (95 % CS)

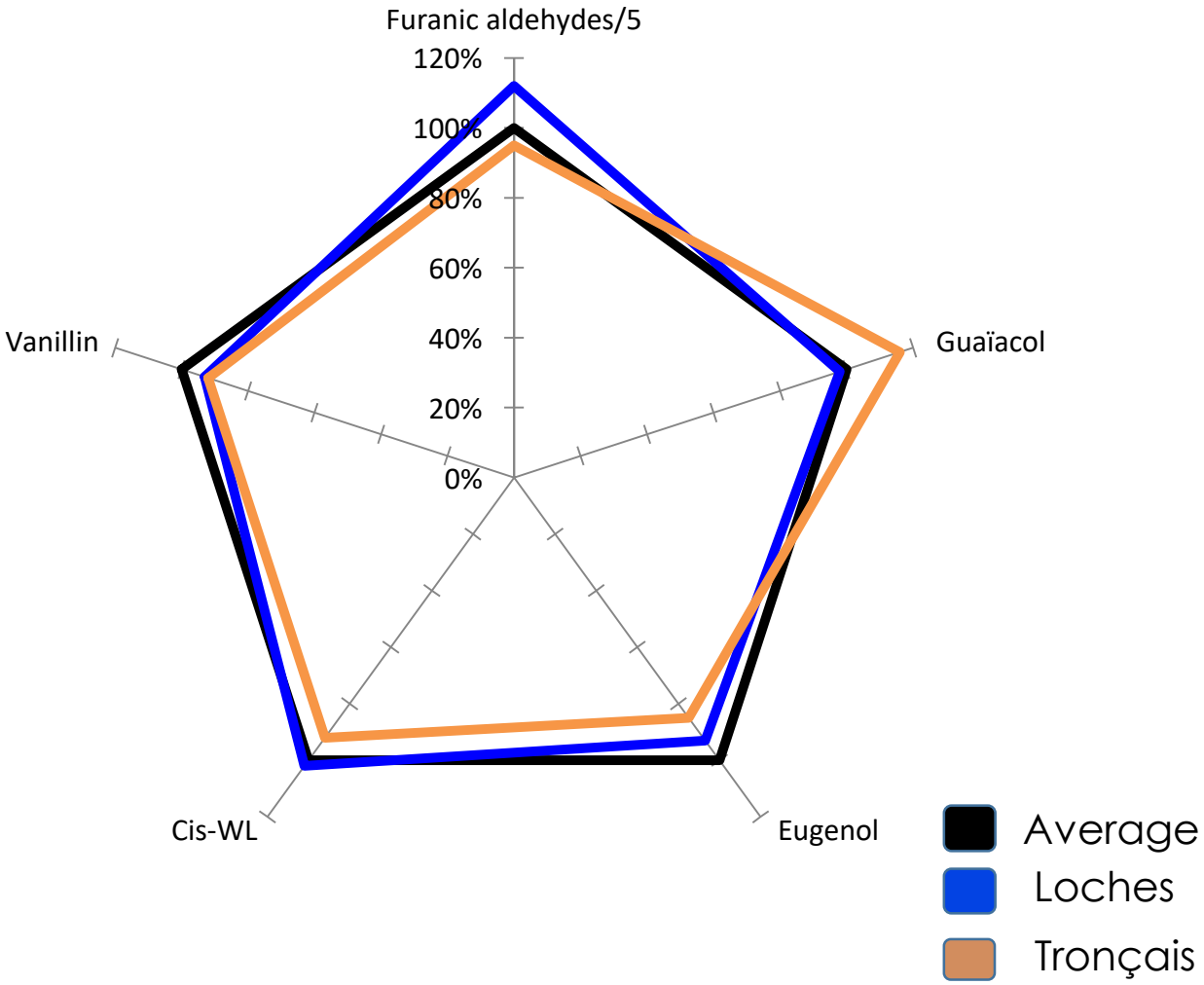
BARRELING: January after MLF

AGING PERIOD: 15 months

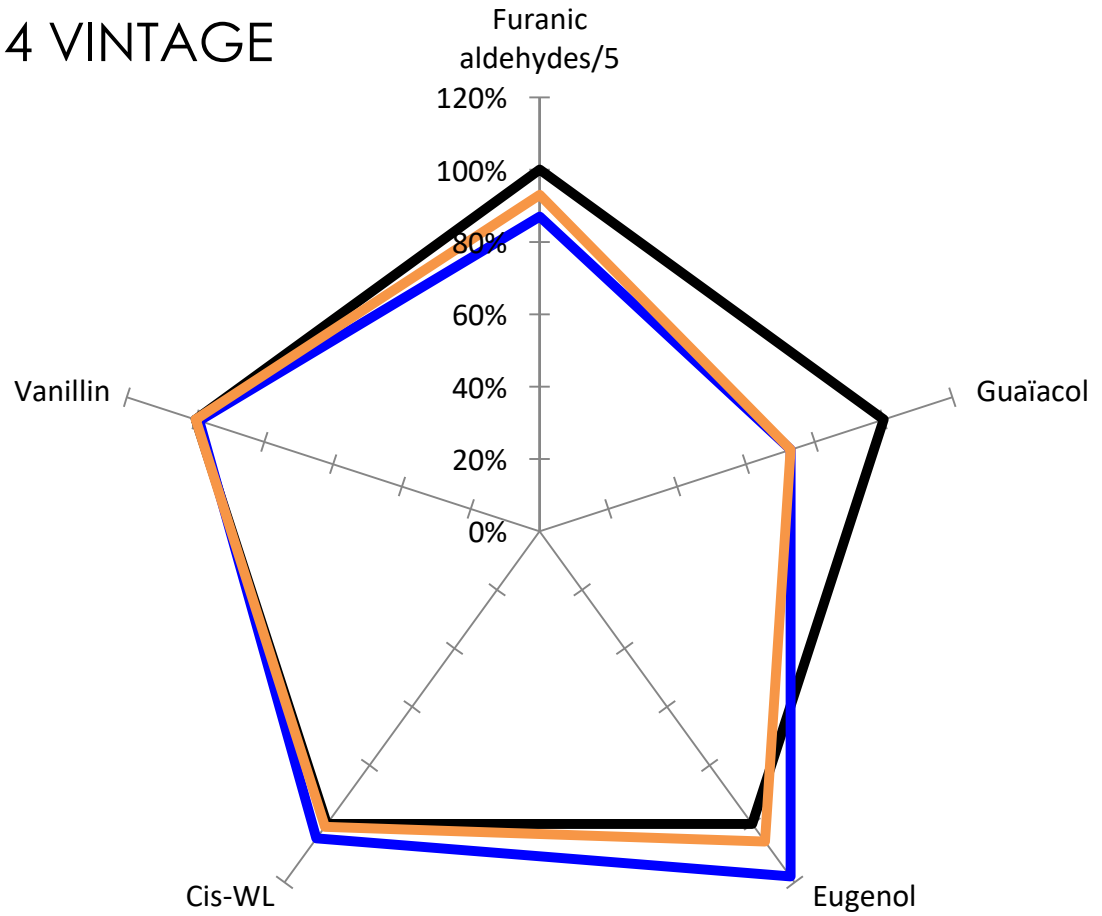
RELATION BETWEEN TANNIN & GEOGRAPHIC ORIGIN

Trial done in collaboration with the ONF and Château LATOUR

2013 VINTAGE



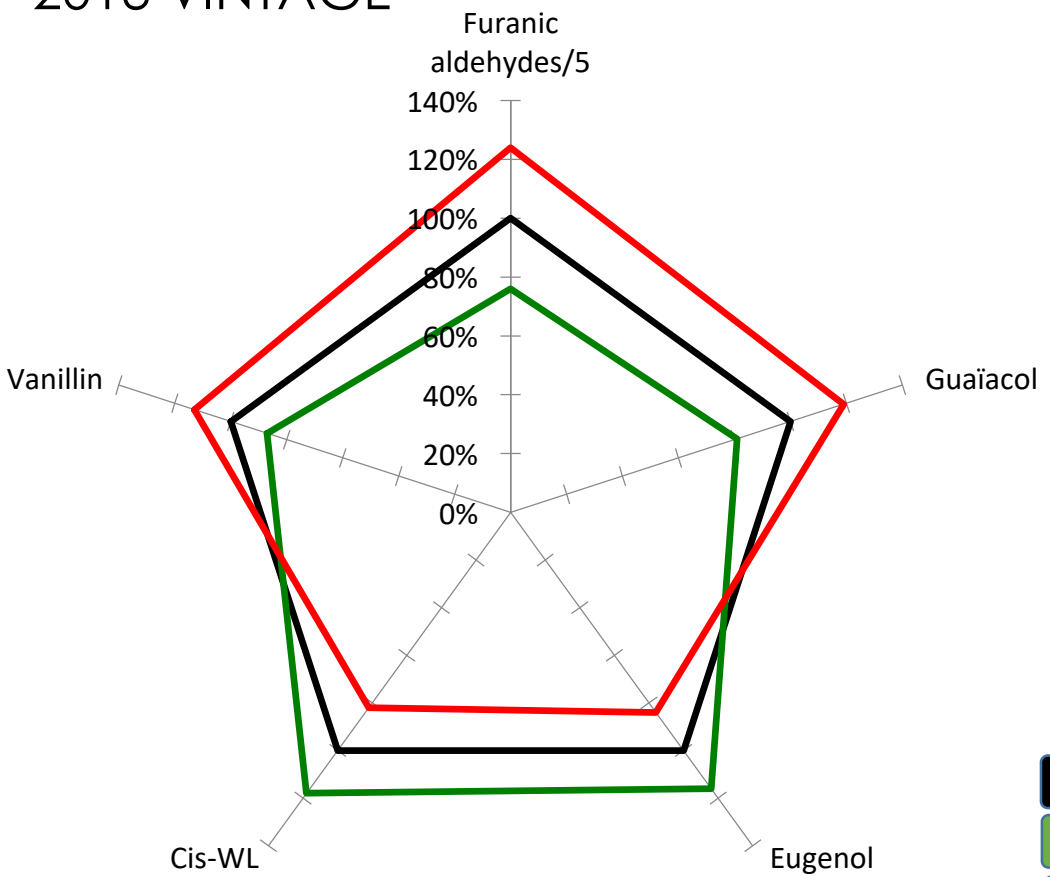
2014 VINTAGE



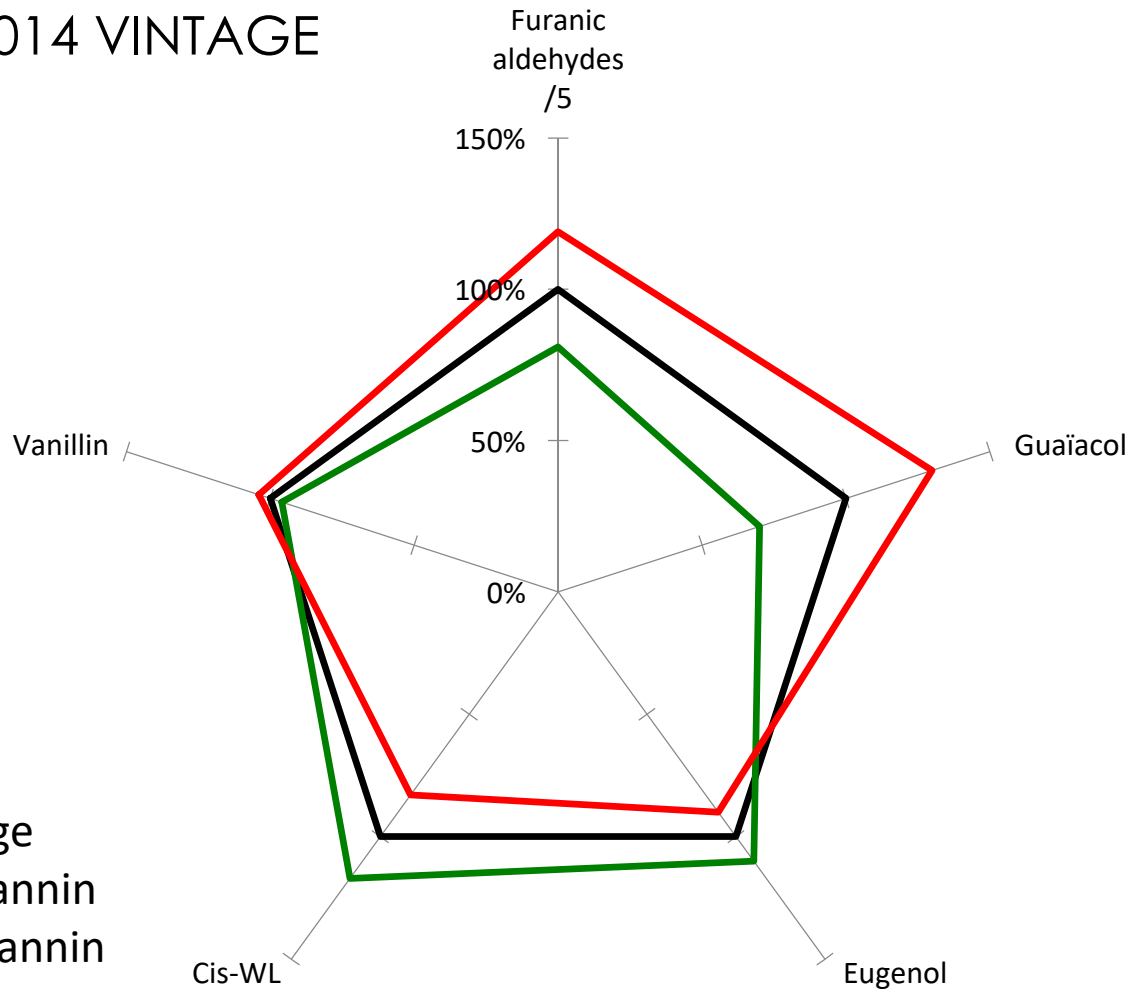
RELATION BETWEEN TANNIN & GEOGRAPHIC ORIGIN?

Trial done in collaboration with the ONF and Château LATOUR

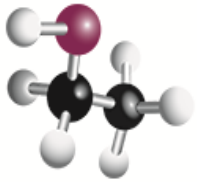
2013 VINTAGE



2014 VINTAGE



Average
Low Tannin
High Tannin



Read more about our research in the February 2016 AND 2017 issues of Practical Winery and Vineyard Journal

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