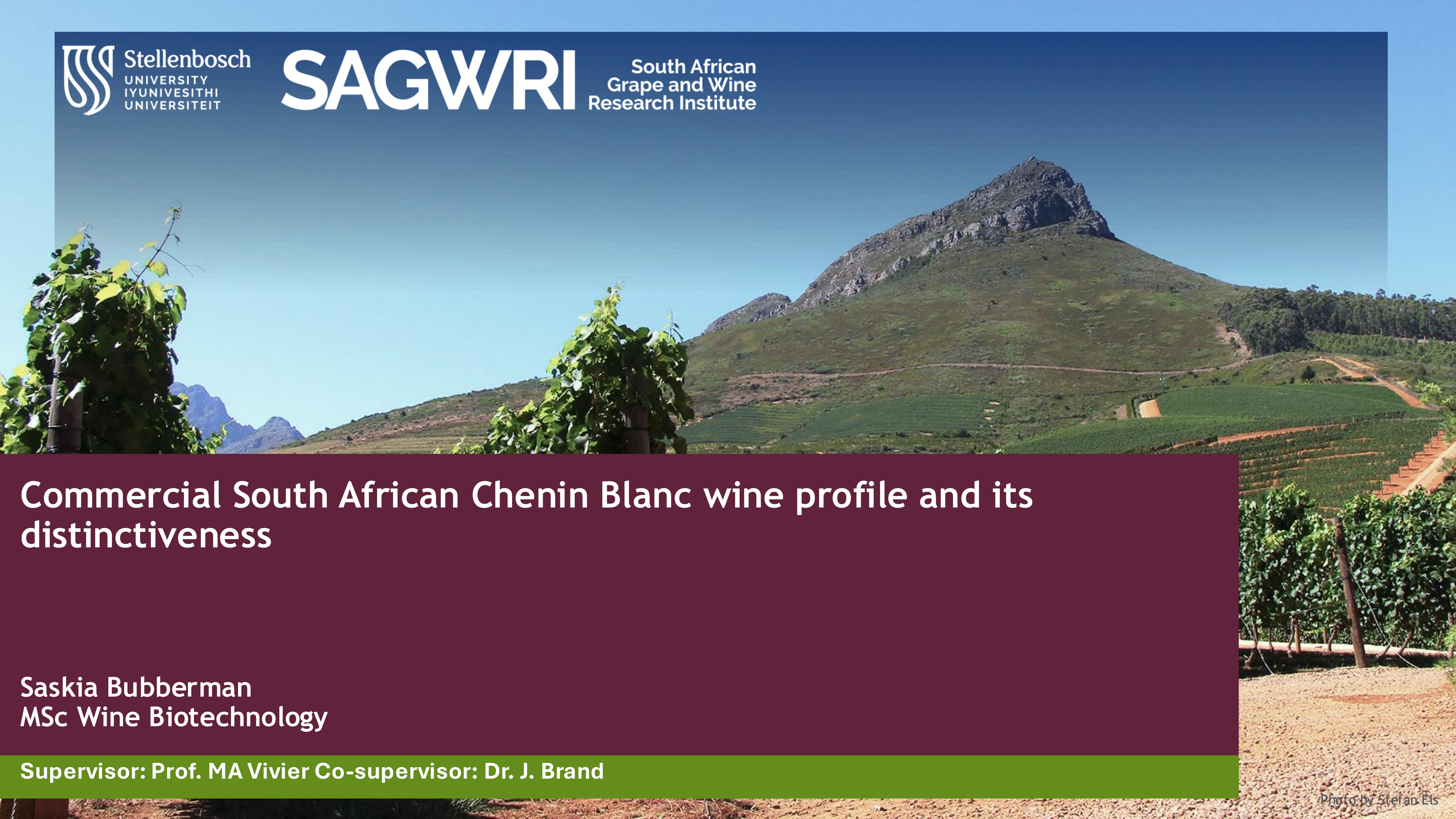
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Commercial South African Chenin Blanc wine profile and its distinctiveness

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Wine characteristics

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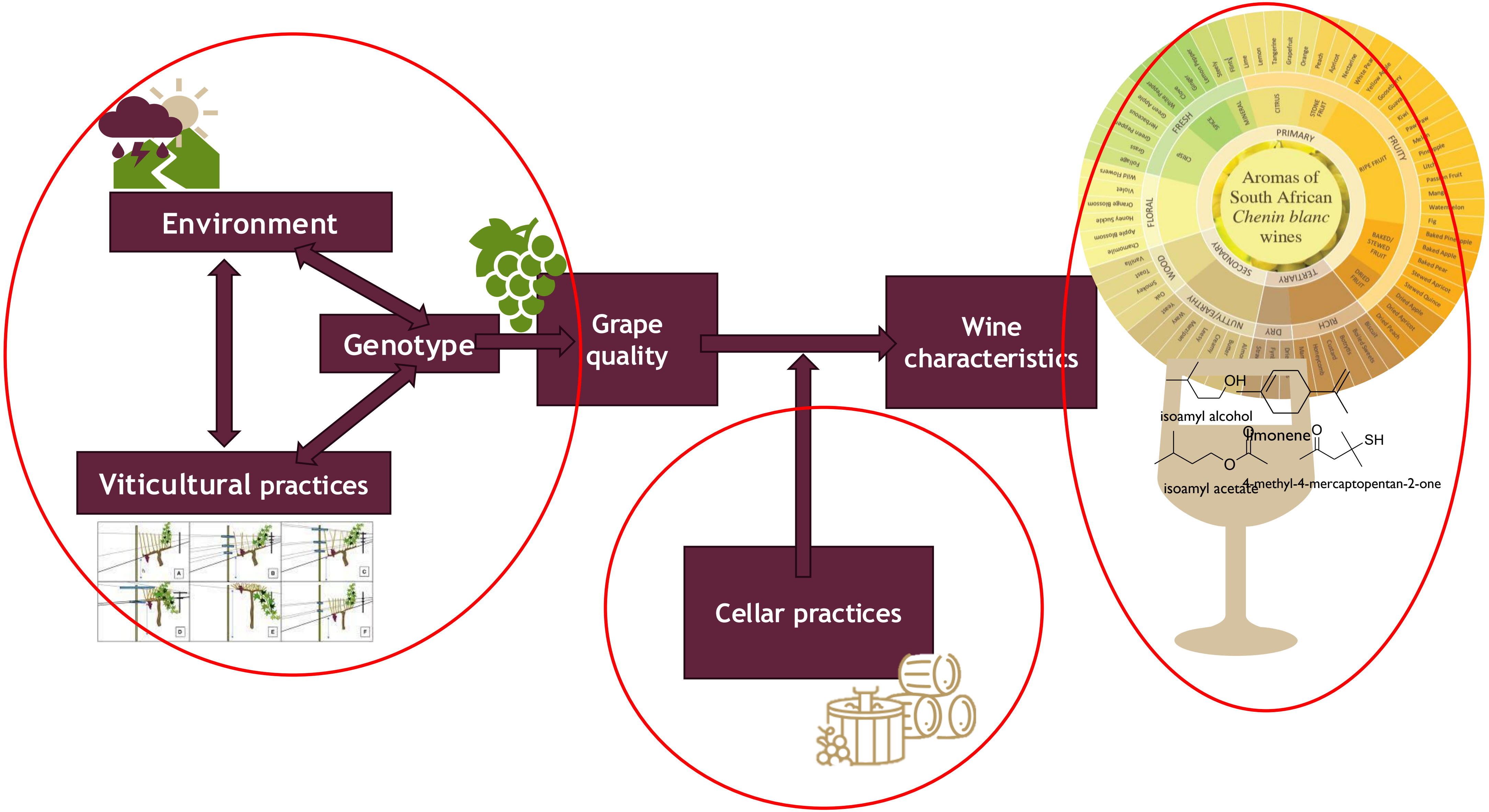
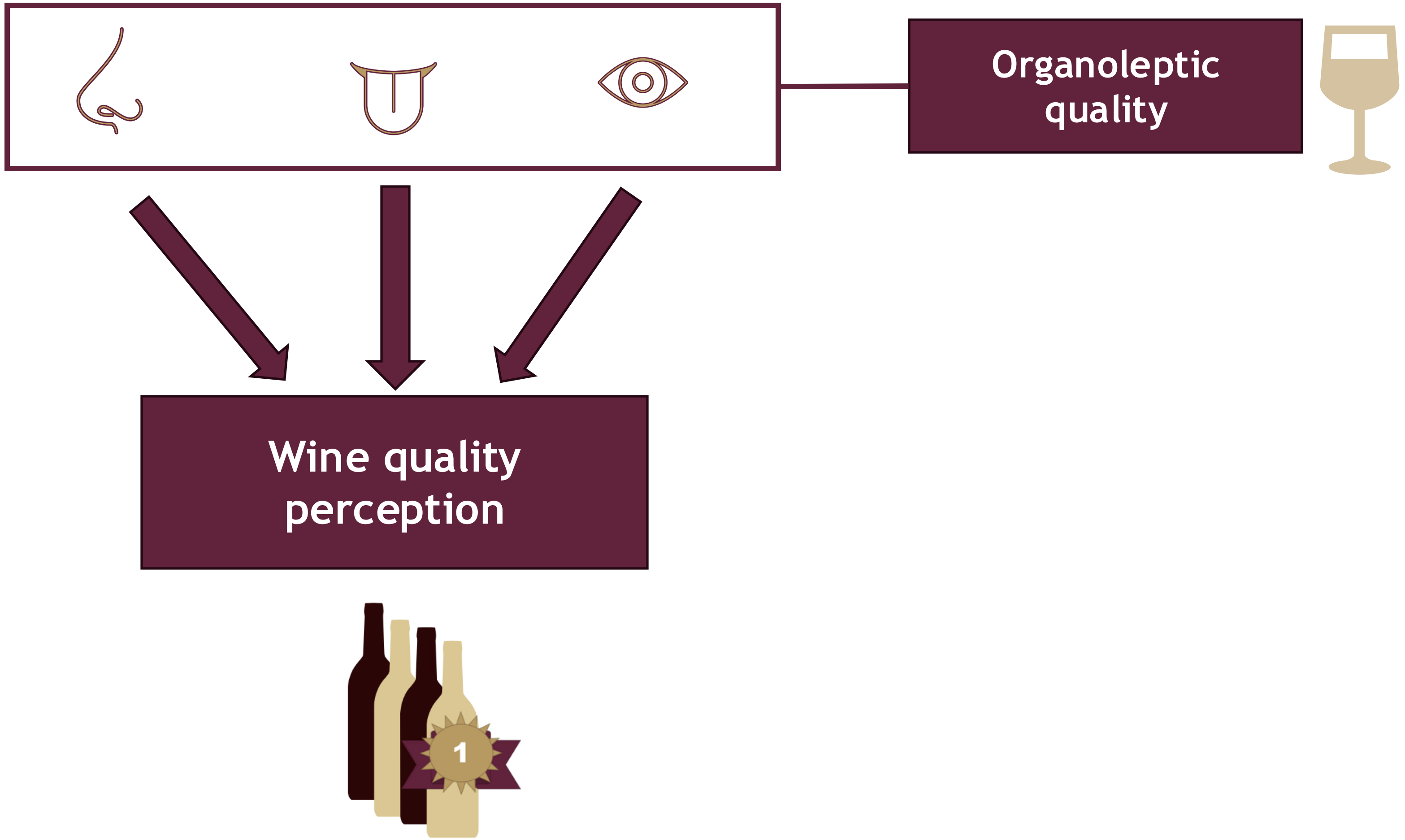


(Neethling *et al.*, 2012; Souza Gonzaga *et al.*, 2021)

Wine quality perception



(Parr et al., 2020)

Objective 1 - Wine samples sourcing

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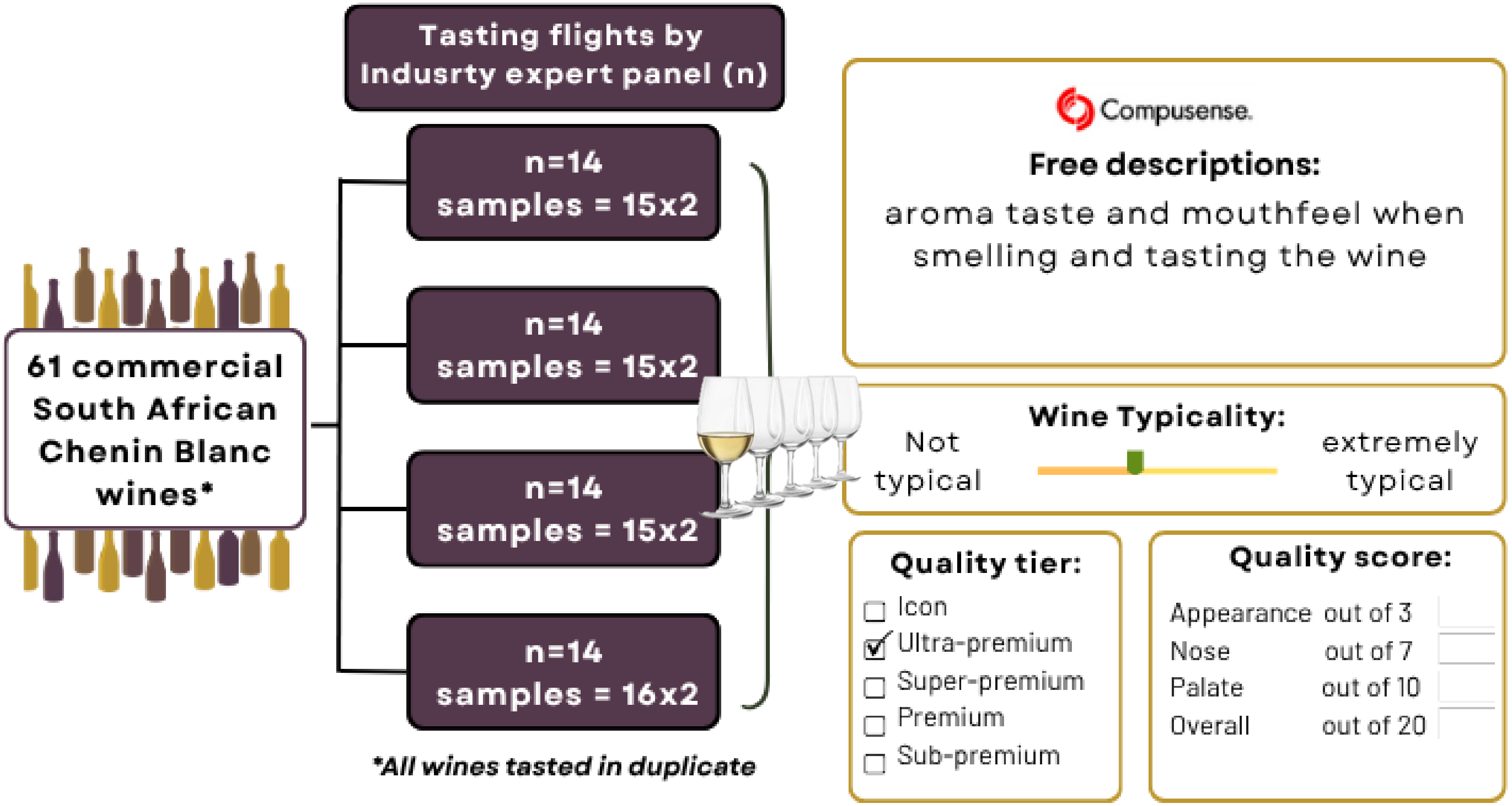
Wine selection from different producers in SA made from 100% Chenin Blanc

Dry: RS < 5g/L (or max 9 g/l if the TA more than 2 g/l below RS)

Wine	Price range	Wine style	Vintage	WO	Oenology data
51 Commercial bottled wines	R65-R450	31 Wooded 20 Unwooded	2021-2024	Region/ district/ ward from Western Cape production area	Vinification (e.g. spontaneous/inoculated fermentation, Lees, MLF, old, new oak, concreate, stainless steel etc.)
10 Bulk wine		10 Unwooded filtered tank samples	2024		

Unbottled wine sold in large quantities, for blending and or export

Objective 2 - Sensory procedure with Industry experts



Objective 2 - sensory space

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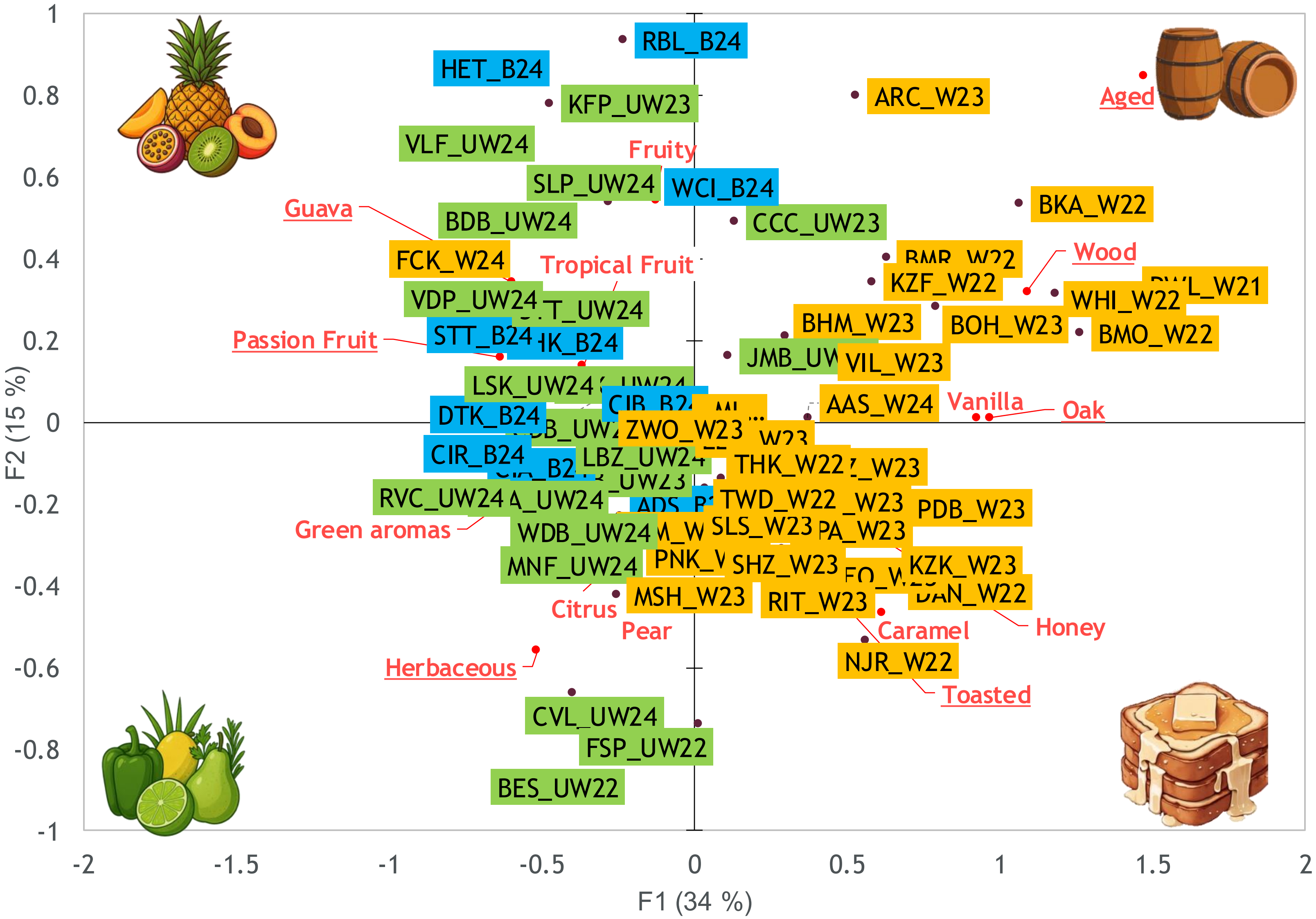

- Perceived attributes for unwooded/bulk wines with: **guava, passion fruit, and herbaceous aromas**, contrasting the wooded wines with: **aged, wood, oak and toasted** aromas the most

- Low distinction between Unwooded and bulk wines

- No significant difference for fruity, citrus, pear and tropical fruit aromas across the wine styles

Objective 2 - Quality score

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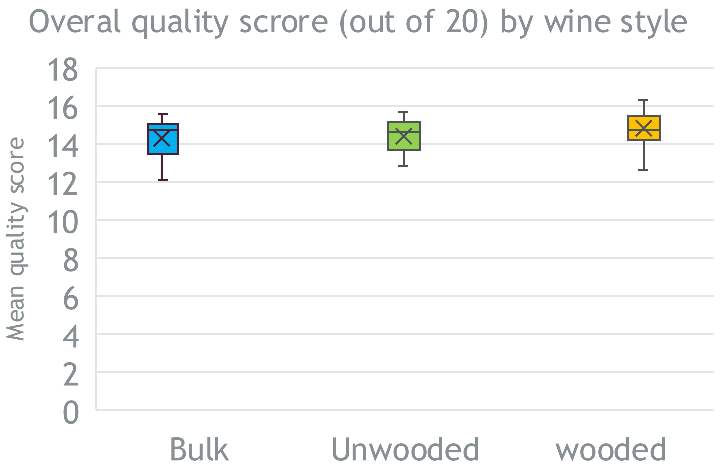
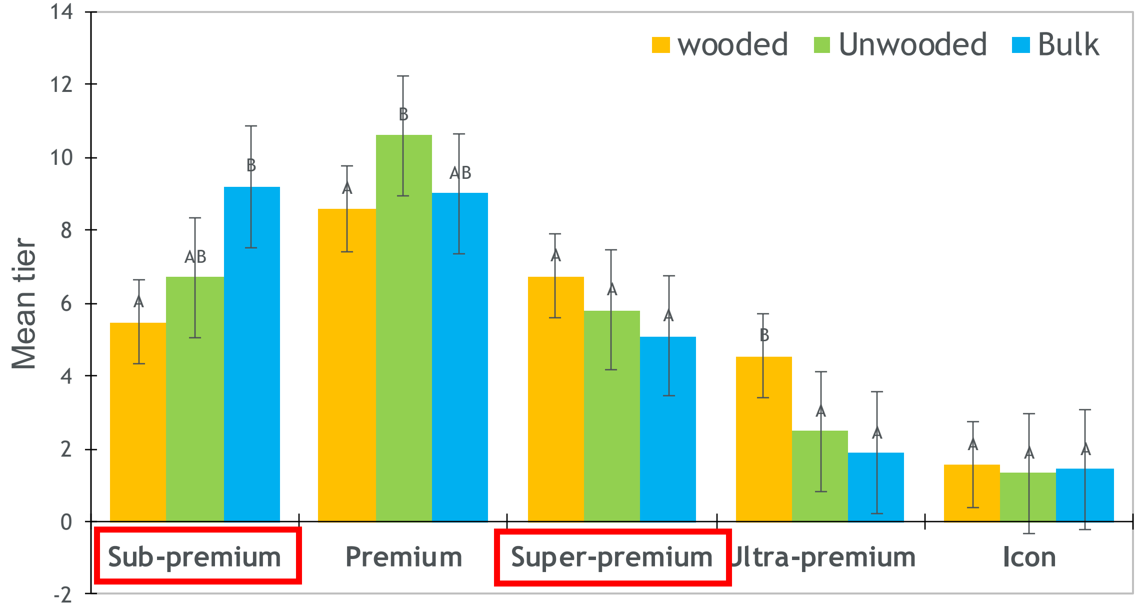


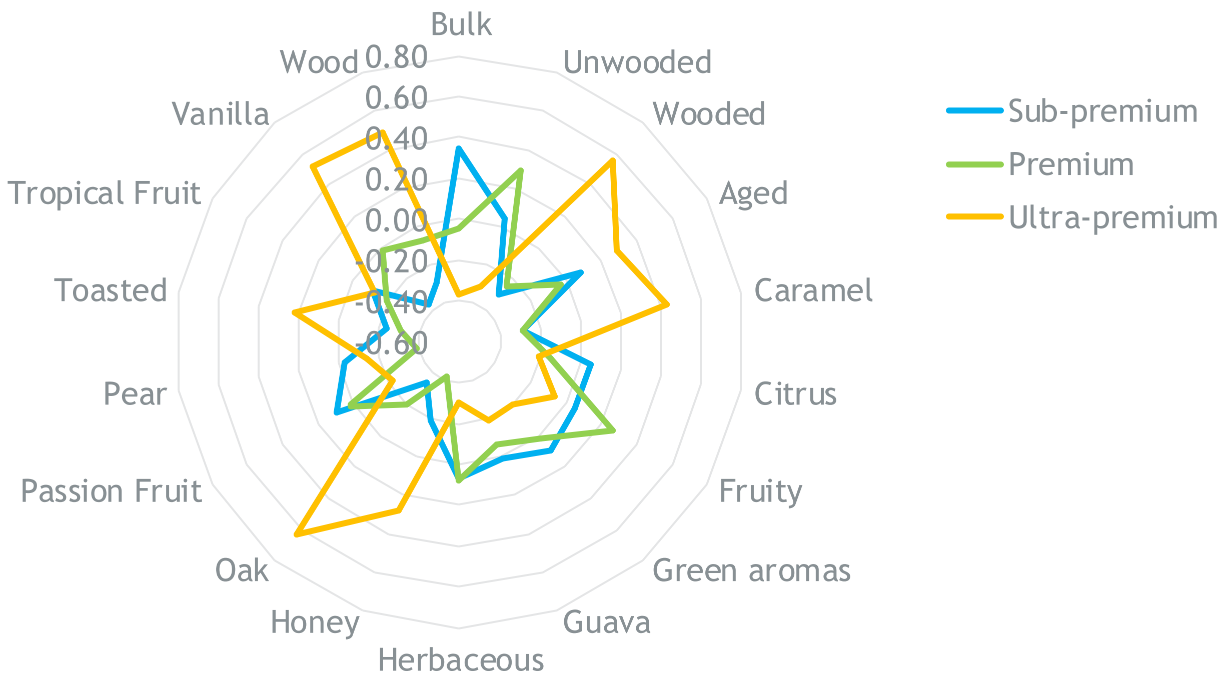
- Overall quality scores across wines were significantly different according to ANOVA (P<0,05)
- However, no significant differences when grouped for wine style
- Positive correlating aromas mostly from wood characteristics

Objective 2 - Quality tiers

Quality tier by style



Tier by style and aroma attribute



- Most classified tiers sup- to super- premium by expert panel
- Significant differences only between sub-premium and ultra-premium tiers across styles
- Bulk is mostly classified in the sub-premium, unwooded in the premium and wooded in the ultra-premium

Objective 3 – Wine's chemical analysis

- A **subset of 12 different South African Chenin Blanc wines** was selected for chemical analysis
- Selection based on production variation: different vintages, origins, vineyard practices and style
- Analysed with different LC methods and GC/LC coupled MS analysis methods

Objective 3 – Chemical analysis

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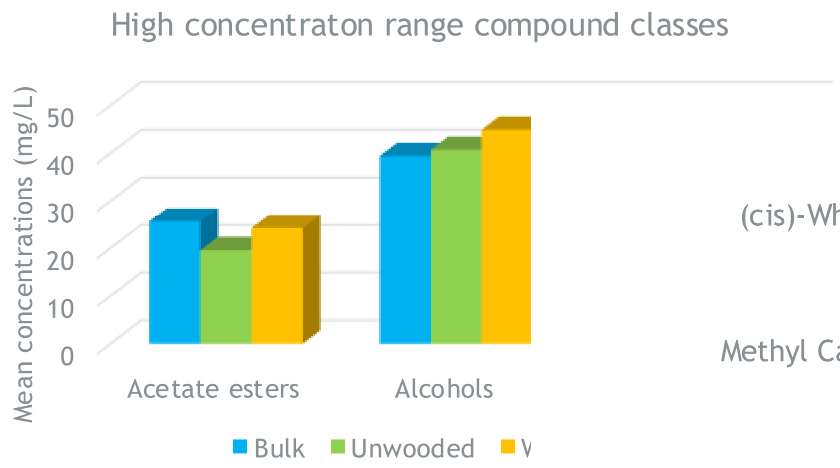

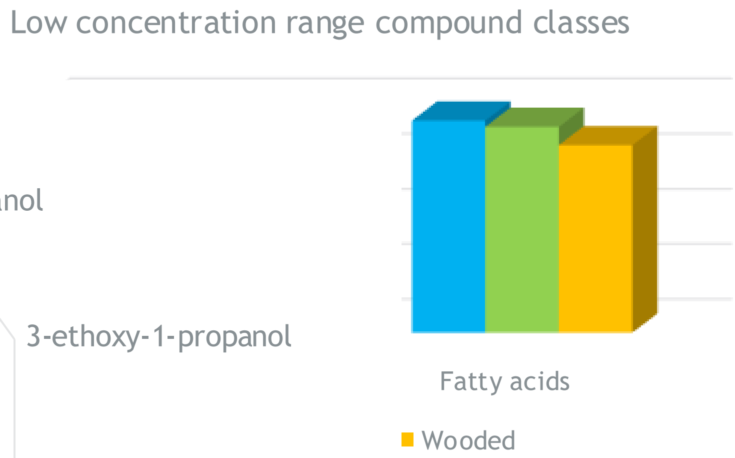

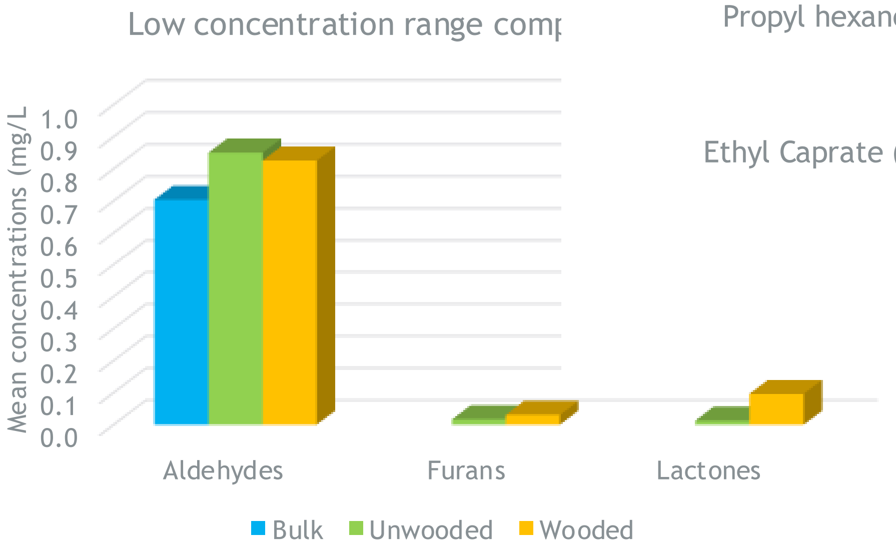

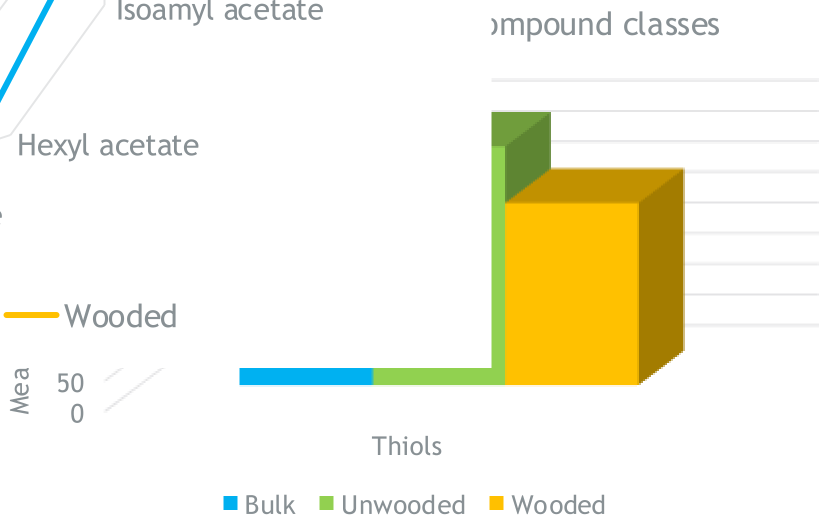

Odor impact

Compound classes[a]	OTV range (µg/L)[b]	Aroma descriptions[c]
Terpenoids	0.05-250	Floral (rose, geranium), citrus (lemon, orange), herbaceous, honey
Thiols	0.8-60	Tropical fruits, passion fruit, box tree, guava, grapefruit
(Methoxy)pyrazines	1-20	Green (green pepper, green peas, asparagus, earthy)
Esters (ethyl esters, acetate esters, carboxylate esters)	10-200 000	Fruity (pear, apricot, pineapple, banana), floral, sweet, nail polish, buttery creamy
Alcohols	10-500 000	Aromatic, pungent, ripe fruit, soap, floral tabacco
Aldehydes	5-100 000	Fruity (green apple), creamy, nutty
Ketones	1-150 000	Fruity (quince), buttery
Volatile (fatty) acids)	30-200 000	Rancid (vinegar, sweaty), greasy, cheesy, waxy
Furans	10-5000	Caramel, toasty, almond
Lactones	20-35 000	Coconut, woody, sweet
Volatile phenols	6-1100	Spices, smoky, honey

Objective 3 - Chemical analysis

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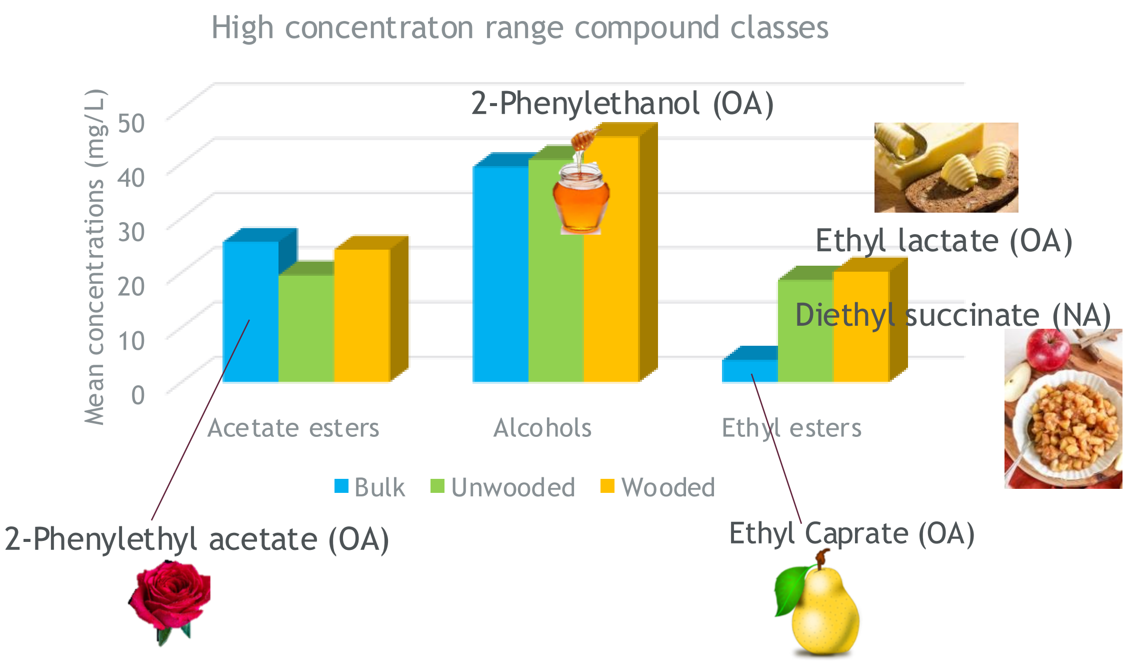

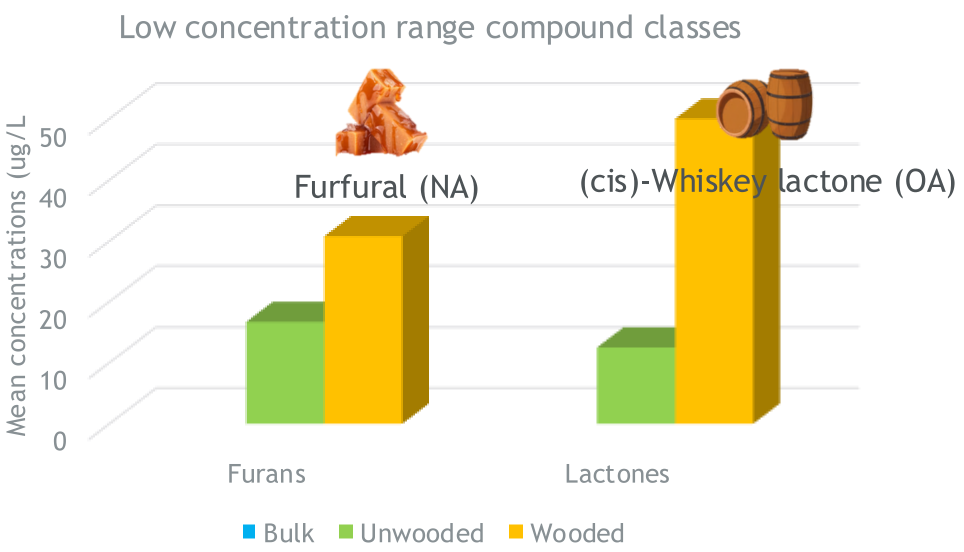

Key notes

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- Clear mapping of the sensory aroma space by industry experts for the sample set of 61 commercial SA Chenin Blanc wines
- Distinctive separation between wooded and non-wooded wines (partly overlap between bulk and unwooded wine styles)
- Quality score and tier classification are not significantly driven by wine style but by attributes
- Most odour-active compounds are perceived from **esters, alcohol and thiol compound classes**, contributing to the fruity characteristics of the wines
- Whiskey lactone (wood-associated aromas), perceived mostly from wooded style Chenin Blanc wines, and their odour activity distinguishes them from non-wooded styles
- Wine chemical and odour correlation remains a complex matter

Acknowledgement

- Prof MA Vivier and Dr Jeanne Brand
- Chemical lab team
- Sensory lab team
- All wine producers for their generosity
- The Chenin Blanc project team
- Family and friends <3

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Thank you
Enkosi
Dankie

AgriSciences · EyeNzululwazi ngeZolimo · AgriWetenskappe

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