

Chemical and Sensory profiling of dry Chenin blanc wines styles

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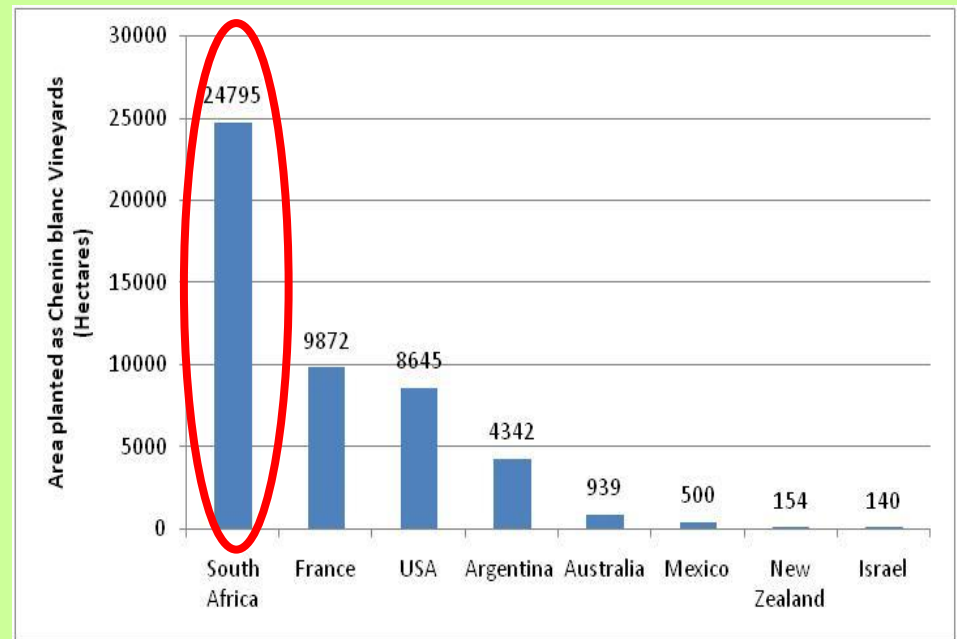


Chenin blanc Conference, Stellenbosch, 14 November 2011

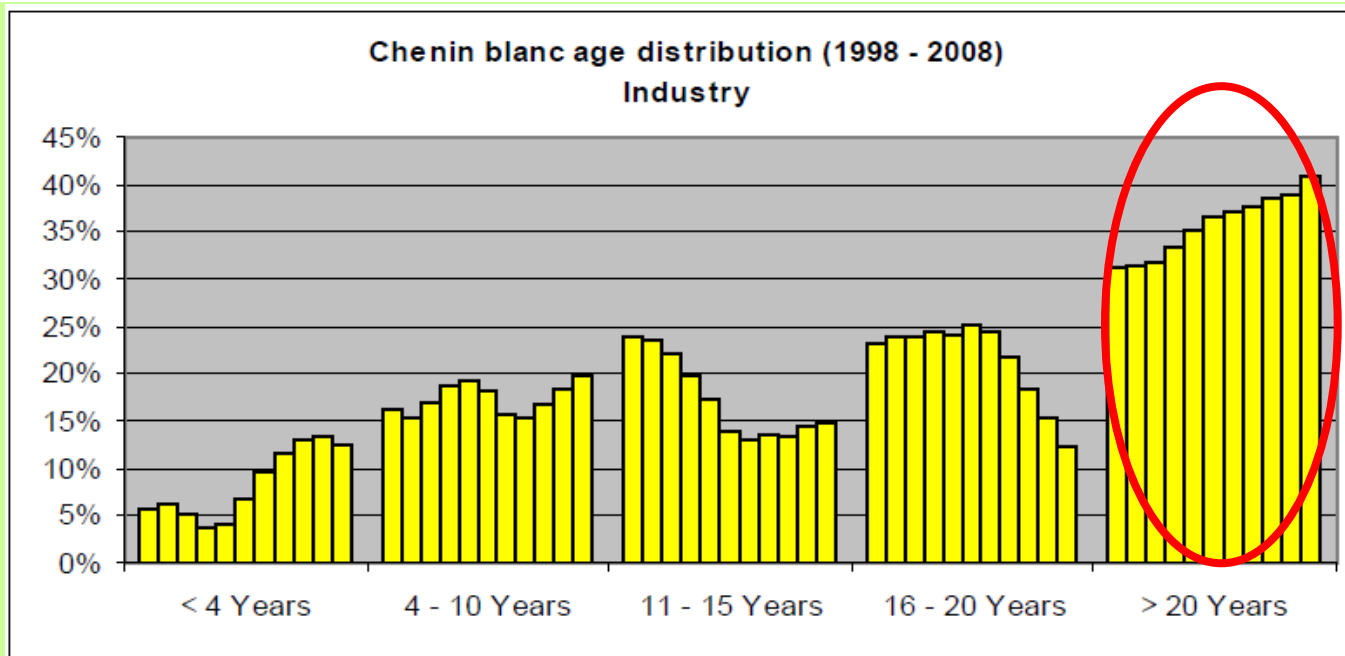
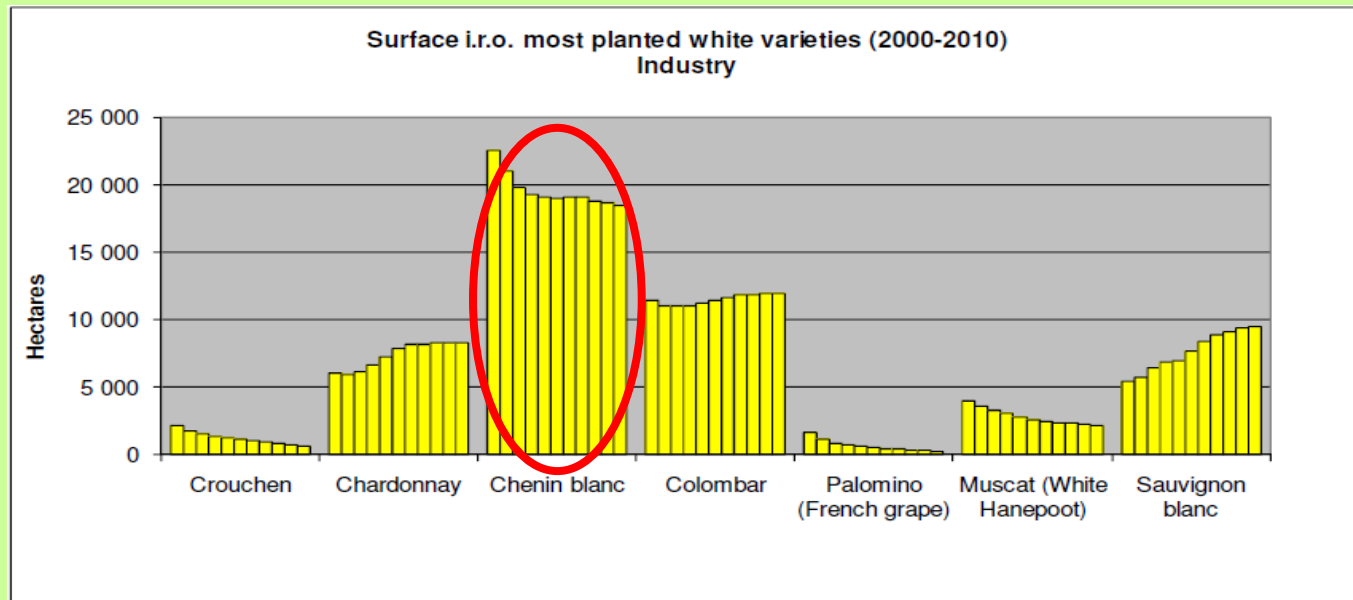


Chenin blanc

- White wine variety from the Loire valley of France
 - Labeled under regional names:
Vouvray Sec, Savennières
- SA: extensive labeling under Chenin blanc varietal
 - Dry/semi sweet table wines
 - Sparkling wines
 - Dessert wines



Chenin blanc is the most planted variety in SA (SAWIS, 2011)



The quality of SA CB

- SA used Chenin as “workhorse” variety
 - contributing acidity to bulk white blends
 - Brandy production
- International wine challenge 2011
 - 13 SA wines awarded gold
 - Oldenburg Chenin blanc 2010
 - Spier Landmark 21 Grables Chenin blanc 2009



Style diversity

- Neutral variety
 - Winemaking practices
 - Fermentation derived aroma compounds
 - Maturation

6 styles recognised by the CBA

Style	
Fresh & Fruity	< 9 g/L residual sugar (RS)
Rich & Ripe – Unwooded	< 9 g/L RS
Rich & Ripe – Wooded	< 9 g/L RS
Rich & Ripe – Slightly Sweet	Between 9 and 30 g/L RS
Sweet	More than 30 g/L RS
Sparkling	Tank fermented or Cap Classique



Research questions

1. Is the current style definition in 3 discrete classes **FF, RRUW, RRW** effective?
2. What are the sensory profiles of these styles?
3. What are the chemical profiles of these styles?

Sample distribution

Area	2010	2011	Total Wines	Wines available	%
Olifants river	8	1	9	12	75.0%
Breede river	5	8	13	36	36.1%
Coastal	54	22	76	218	34.9%
Walkerbay	1	0	1	5	20.0%
KleinKaroo	0	2	2	4	50.0%
Overberg	2	2	4	7	57.1%
Cape Agulhas	0	0	0	2	0.0%

2010: Total of 70 wines from 37 Cellars (CBA Members)

2011: Total of 35 wines from 33 Cellars

Fresh&Fruity	Rich&Ripe (uw)	Rich&Ripe (w)	Total wines
43	18	44	105



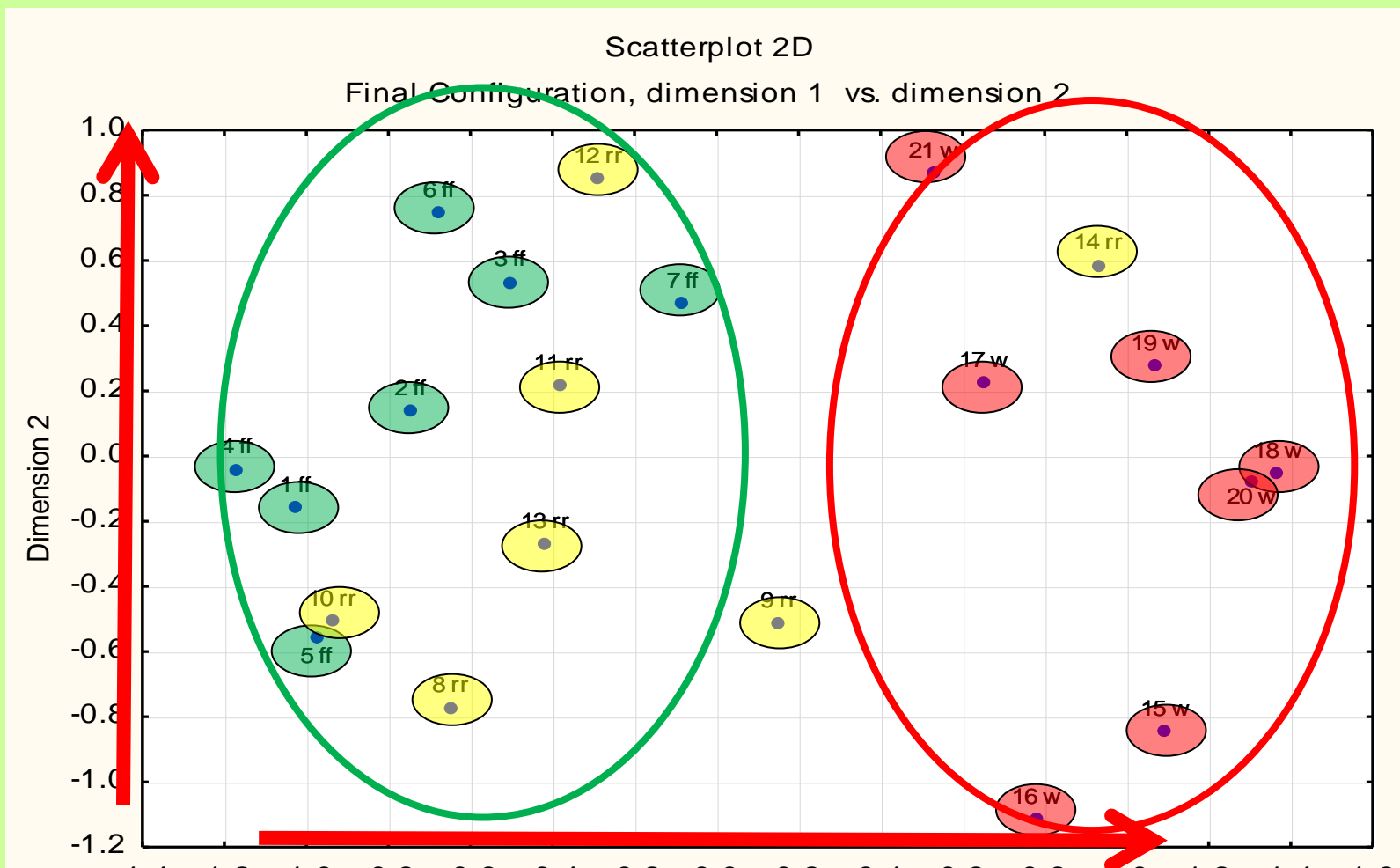
1. Can CB wine experts identify 3 CB styles?

- Panel: 8 winemakers
- 21 wines (7 wines from each style)
 - randomised
- Received NO prior information
 - knowledge & previous experiences
- Colour, aroma, palate attributes
- Overall score out of 20 for each wine
- Use sorting technique to group “similar wines”
- Assign collective descriptors to a group





How well do the three styles separate?



FF

RRW

RRW

What are the characteristic sensory profiles of Chenin blanc?

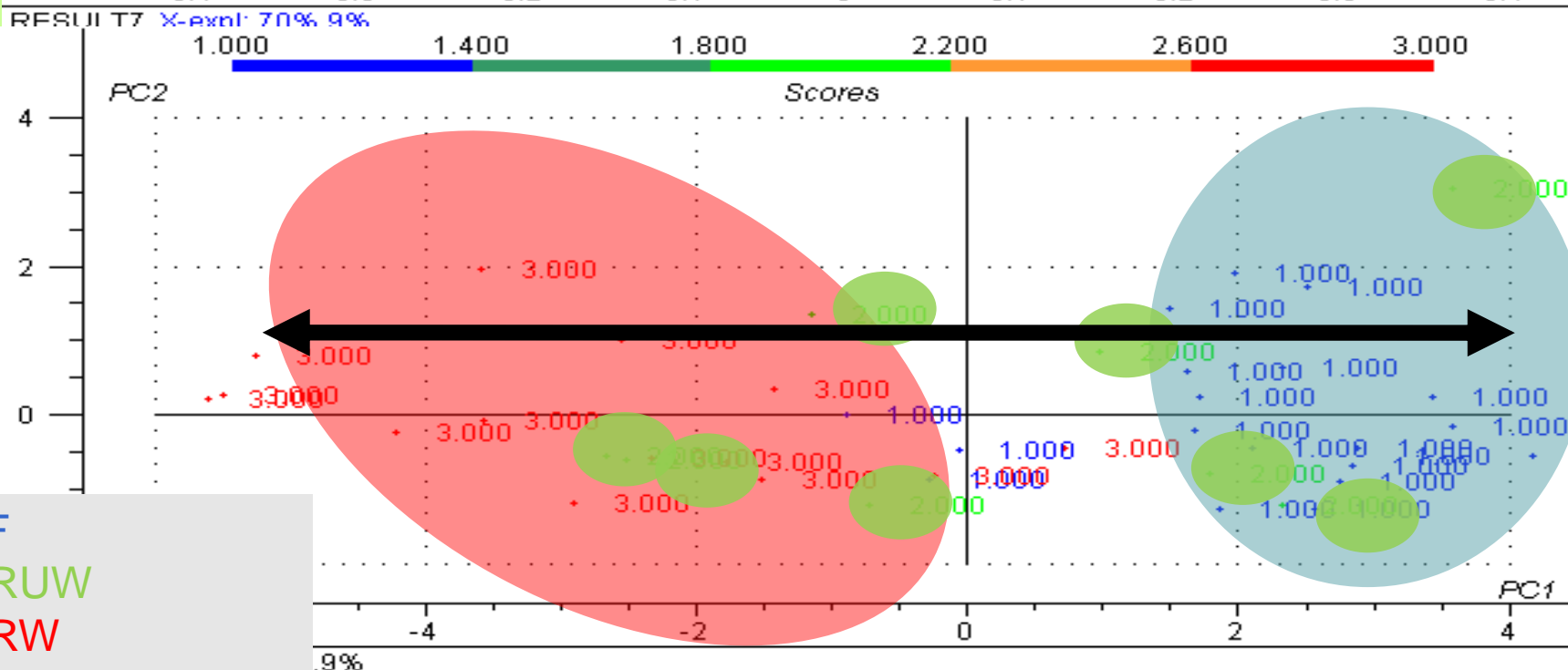
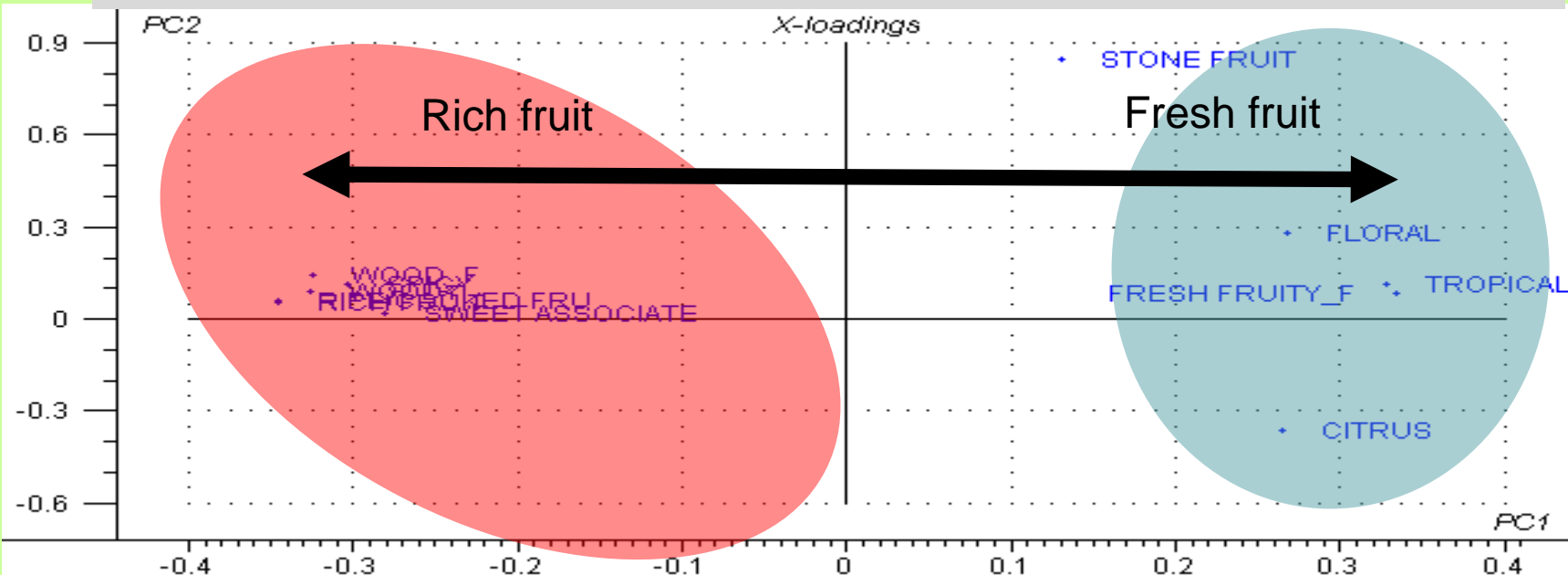
2. What are the sensory descriptors that characterise each style?

Trained Panel (10 panelists)

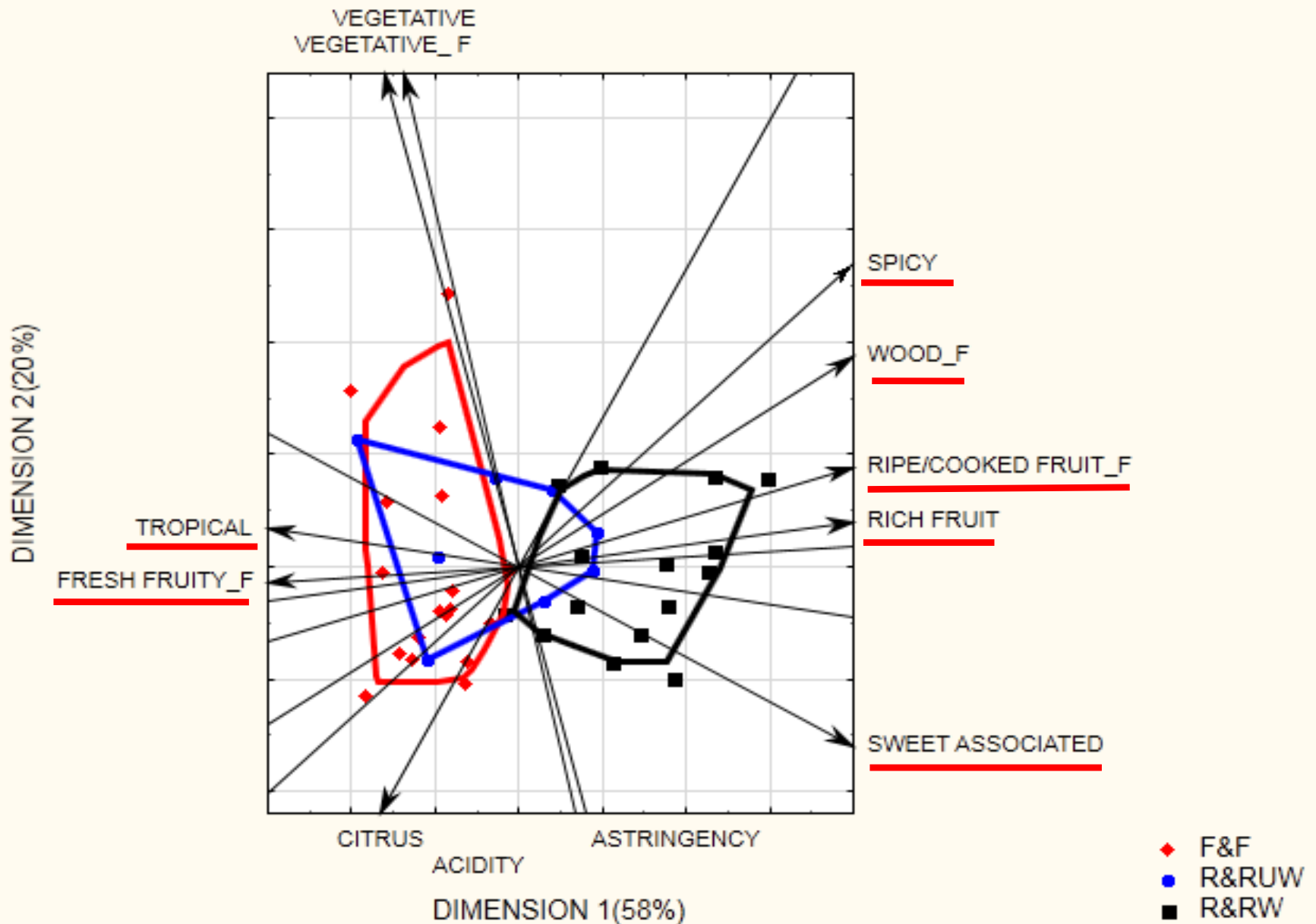
- 42 wines over 4 weeks
 - Use controls
- Descriptive sensory analysis
- Reference standards
- Received 12 formal training sessions
 - Determined the full range of attributes
 - Intensities of attributes
- Testing over 5 days



What are the descriptors generated for each style?



What are the descriptors generated for each style?

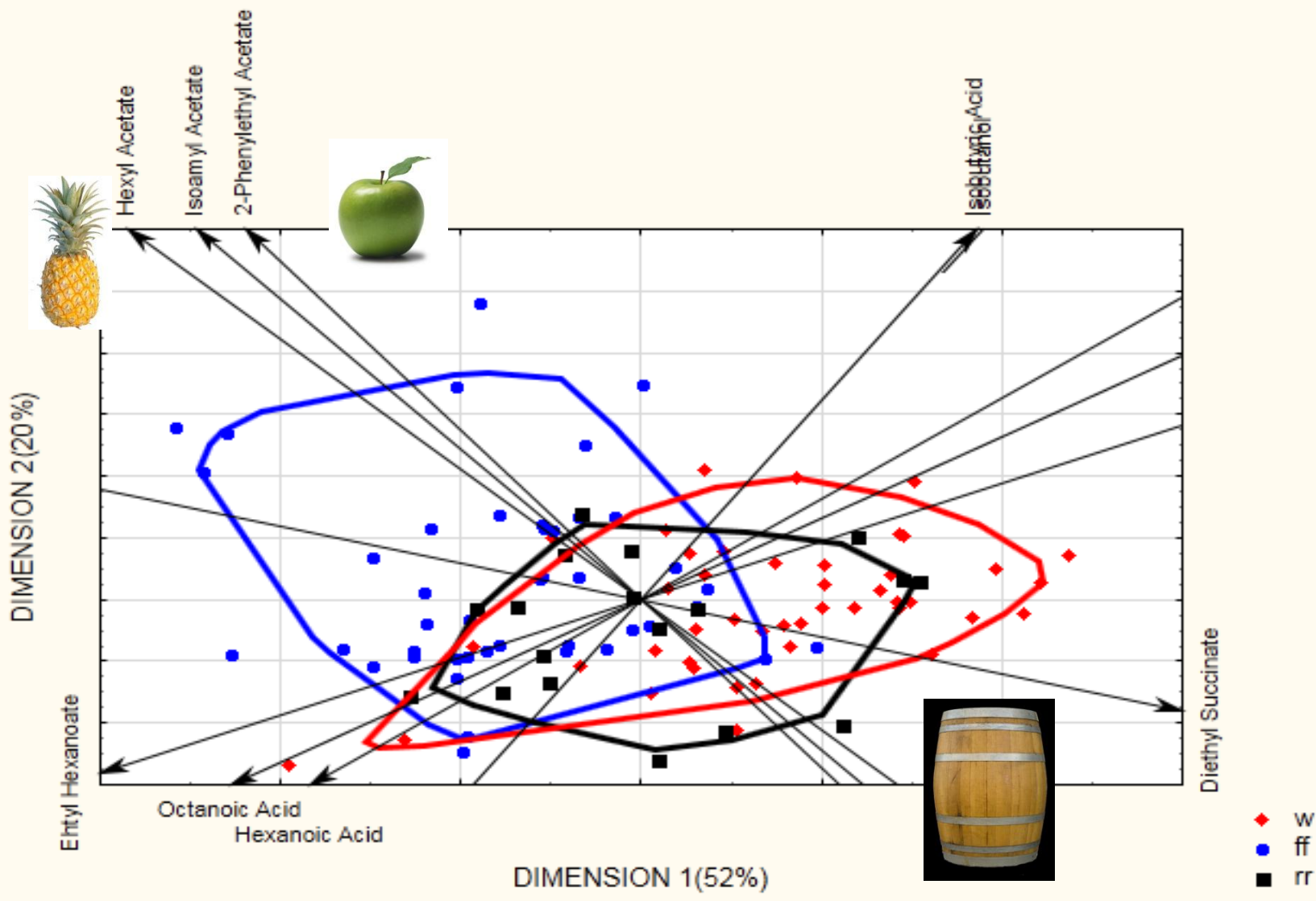


3. What are the characteristic chemical profiles of Chenin blanc?

- Major Volatiles & Monoterpenes (GC-FID)
 - Neutral variety - fermentation derived aroma compounds very important for Chenin blanc
- Organic acids:
 - Chenin used for contributing acidity to bulk white blends
 - Acidity needs to be investigated and compared with other varieties



What are the chemical compounds associated with each style?



What are the significant aroma compounds associated with each style?

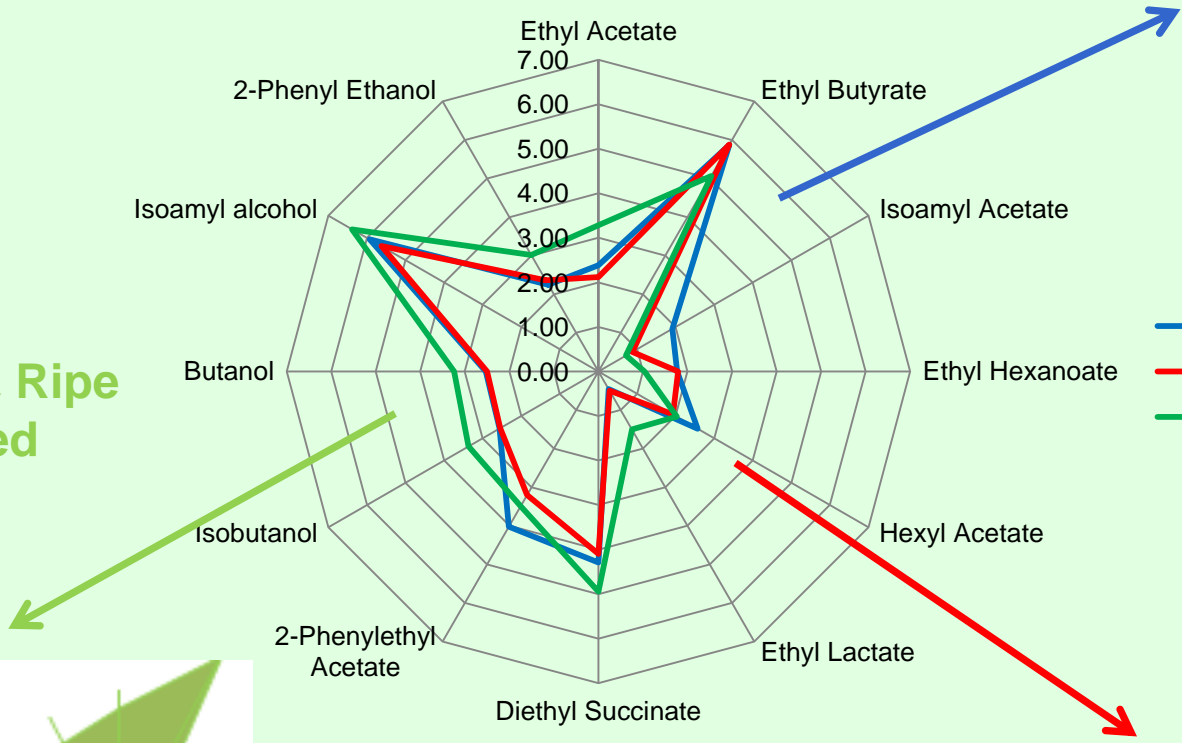
Fresh & Fruity



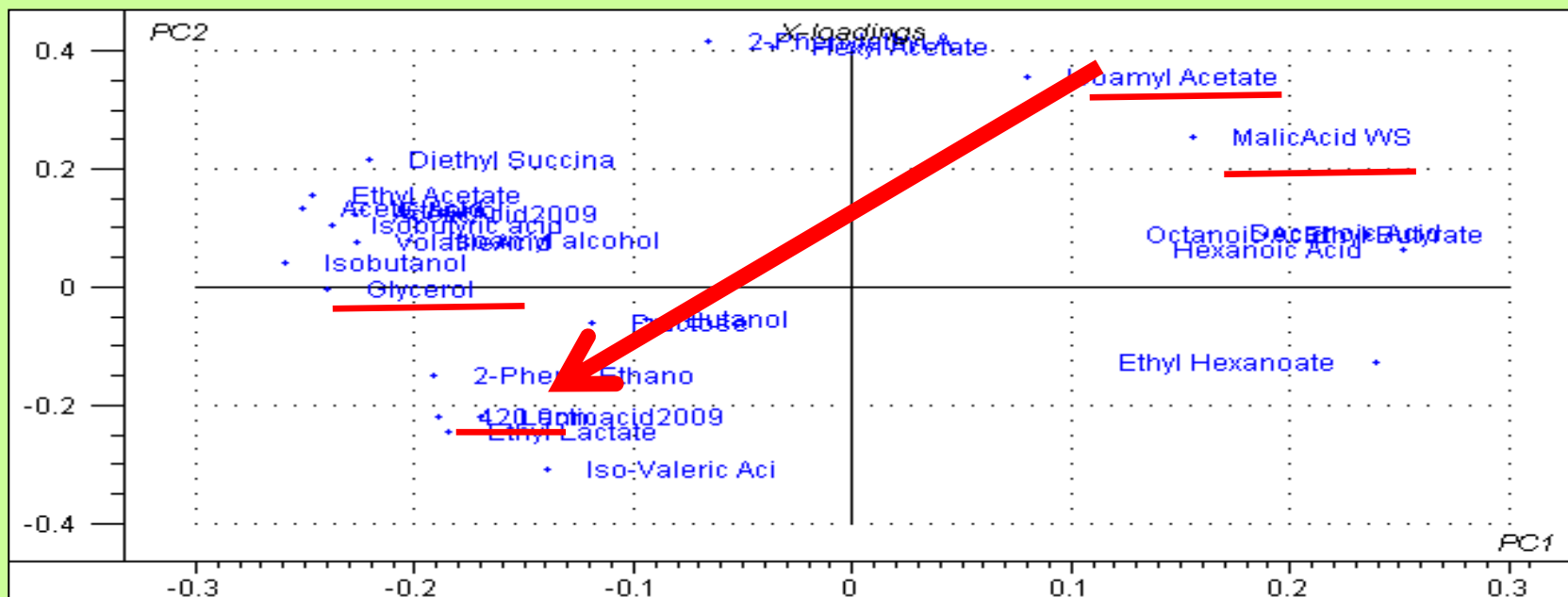
Rich & Ripe
Wooded



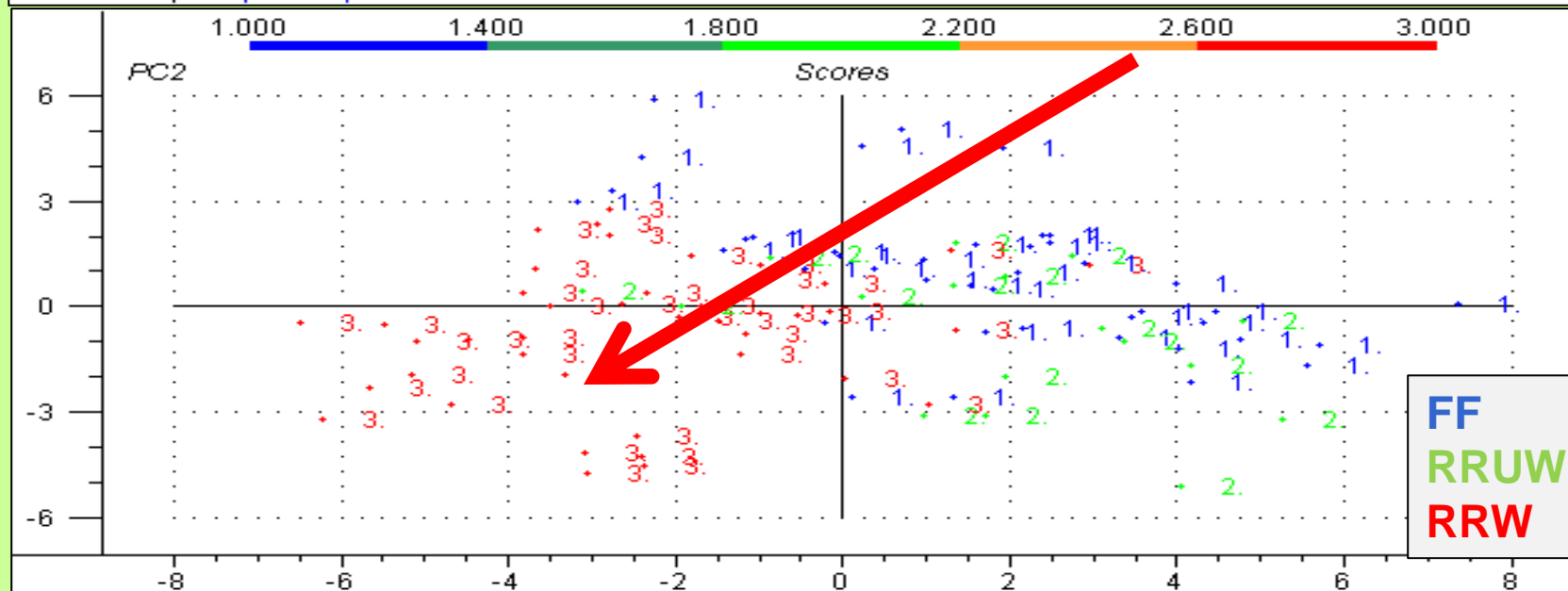
Rich & Ripe
Unwooded



What are the chemical compounds associated with each style?

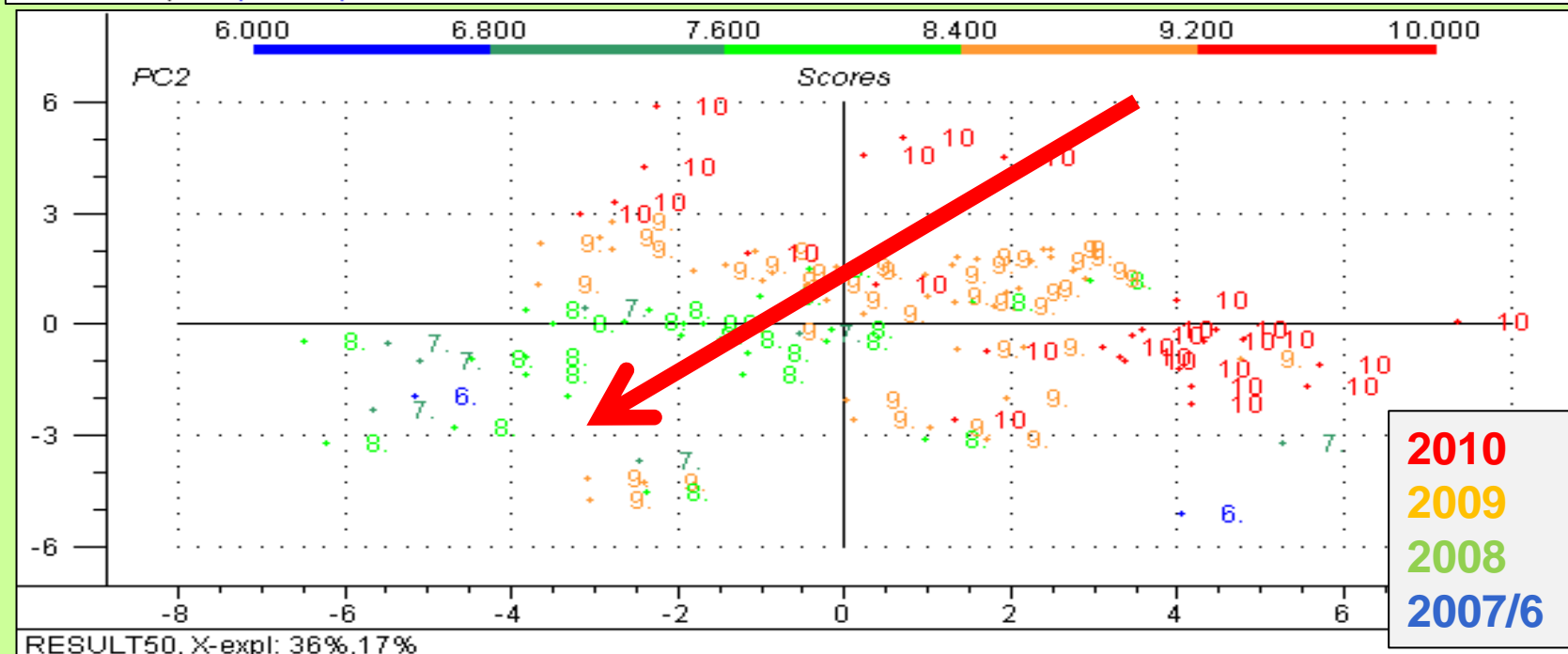
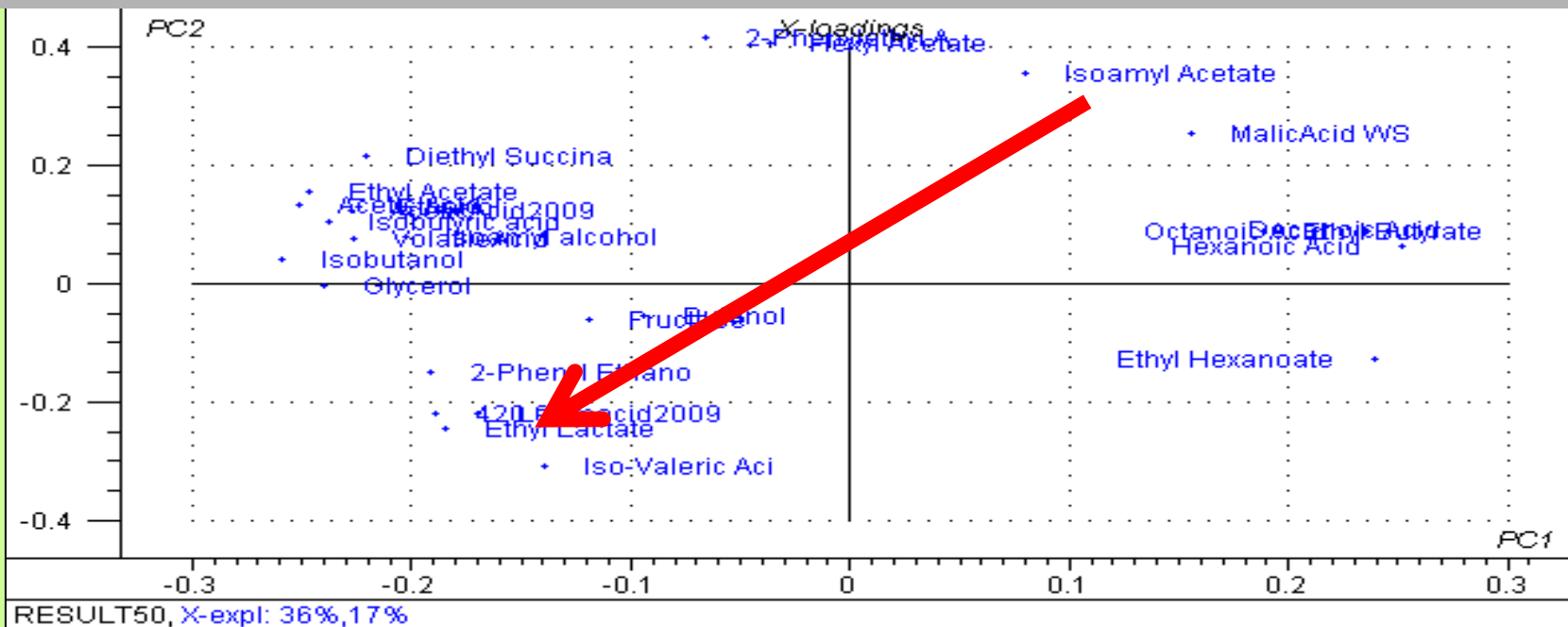


RESULT50, X-expl: 36%,17%

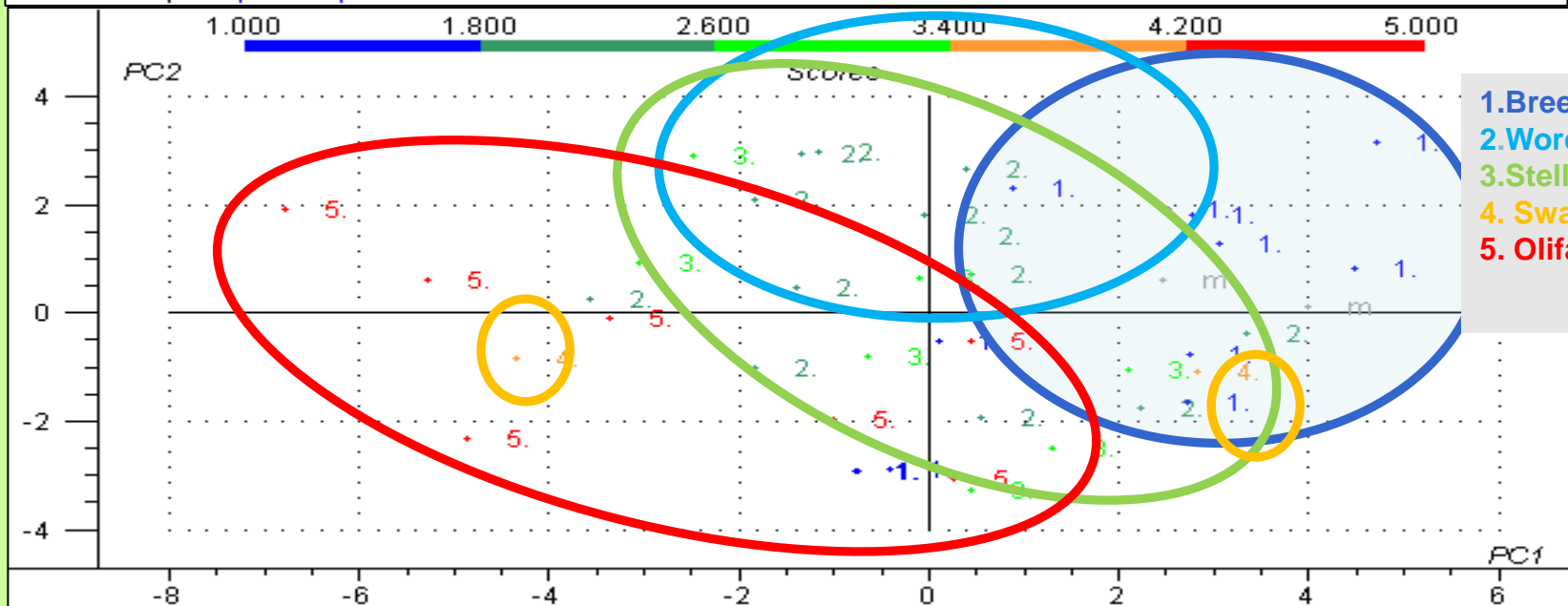
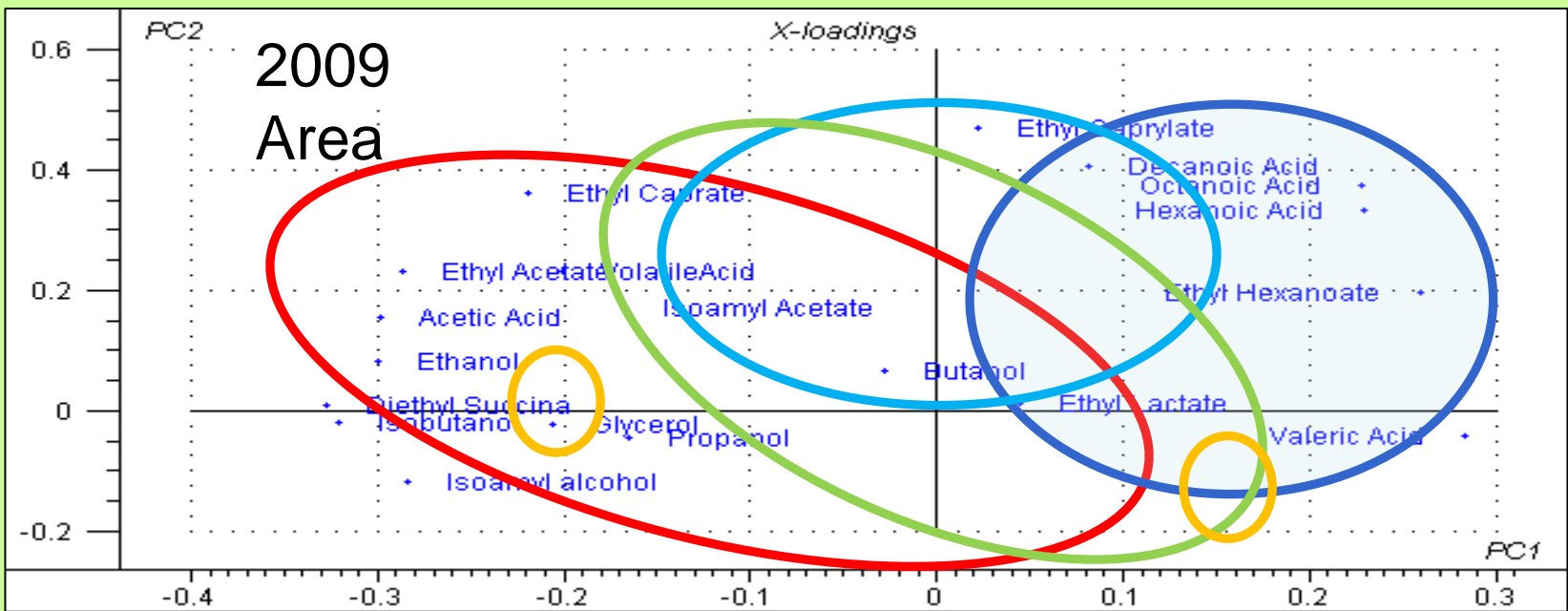


RESULT50, X-expl: 36%,17%

What are the chemical compounds associated with vintage?



Are there chemical compounds associated with area?



Conclusions

1. Is the current style definition in 3 discrete classes **FF, RRUW, RRW** effective?

Experts could not differentiate

2. What are the sensory profiles of these styles?

Can not identify three definite groups

Rather a continuum from fresh to rich fruit

3. What are the chemical profiles?

- Styles – aroma pictures for each style
- Vintage – correlation between styles
- Area – variation between areas as well as inside an area



Acknowledgements

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