



The Australian Wine
Research Institute



Managing vines to influence critical chemistry profiles in sparkling wines

Dr Fiona Kerslake, Dr Bob Dambergs, Dr Paul Smith,
Dr Angela Merry, A/Prof Dugald Close, Dr Jacqui McRae
and Hanna Westmore



An Australian Government Initiative

AusIndustry

Wine
Australia



UNIVERSITY of
TASMANIA



Tasmanian
Government

TIA is a joint venture of the University of Tasmania and the Tasmanian Government.

Project background

- 2010 – 2012
 - AusIndustry and Tasmanian consortium funded viticulture and oenology projects
 - Viticulture
 - Crop load
 - Leaf removal
 - Cane or spur pruning
 - ICIP program, federal AusIndustry funding
 - Drs Richard Smart and Angela Sparrow
 - Agencies – TIA, AWRI and Wine Tasmania
 - Manufacturers – Flextank, Croplands
 - Tasmanian wine industry collaborators - Clover Hill Wines, Frogmore Creek Wines, Jansz Tasmania, Josef Chromy Wines, Meadowbank Wines, Moorilla Wines, Pooley Wines, Brown Brothers (Tamar Ridge Estates), Tolpuddle Vineyard, Winemaking Tasmania

Current project

- 2016 – 2020

- Wine Australia, TIA and industry partner funded oenology projects

1. Taste and analyse the 2010 and 2011 **viticultural trial wines** (5 ½ years on lees)
2. **Maturation** project (PhD candidate, Gail Gnoinski, UTAS)
3. **In-line sensing** of juice quality at press (post-doc Rocco Longo)
4. **Phenolic regionality** (provenance) of juice for sparkling wines (Masters candidate, Hugh McCullough, Plumpton College)

- AWRI, WineTQ, Hill-Smith Family Vineyards, Josef Chromy, Apogee Tasmania

- Dr Jacqui McRae, Mark Solomon, Vicky Amora, Stella Kassara, Laura Bey, Alex Schulkin, Dr Leigh Francis, Dr Dimi Capone, Dr Natoya Lloyd, Dr Luca Nicolotti, Dr Paul Smith, Dr Bob Damberg, Louisa Rose, Jeremy Dineen, Andrew Pirie

Tasting

- Research wines
 - Standard protocol winemaking
 - 30 ppm SO₂
 - 5 g/L sugar
- 2010 viticultural trial wines
 - Wine 1 = control of no leaves removed during the season
 - Wine 2 = leaves removed at veraison



TIA



JOSEF CHROMY
TASMANIA



- Fruit and base wine analysis in 2010 and 2011
- Tirage in 2011 and 2012
- Cellar at 15C
- BevScan
 - In-bottle analysis
- UV-vis SPF
 - Phenolic fingerprint
- OenoFoss analysis
 - Josef Chromy
- Tasting panel
 - Expert winemakers

SPF of wines



Communication

Discrimination of Juice Press Fractions for Sparkling Base Wines by a UV-Vis Spectral Phenolic Fingerprint and Chemometrics

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AWRI collaboration



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- Polysaccharides
 - Texture and mouthfeel, foam height
- Proteins
 - Foam stability
- Volatiles, norisoprenoids and thiols
 - Flavour and aroma
- Fermentation derived products and untargeted analysis (Metabolomics Australia)
 - Flavour and aroma

Northern Tasmania leaf removal CHA



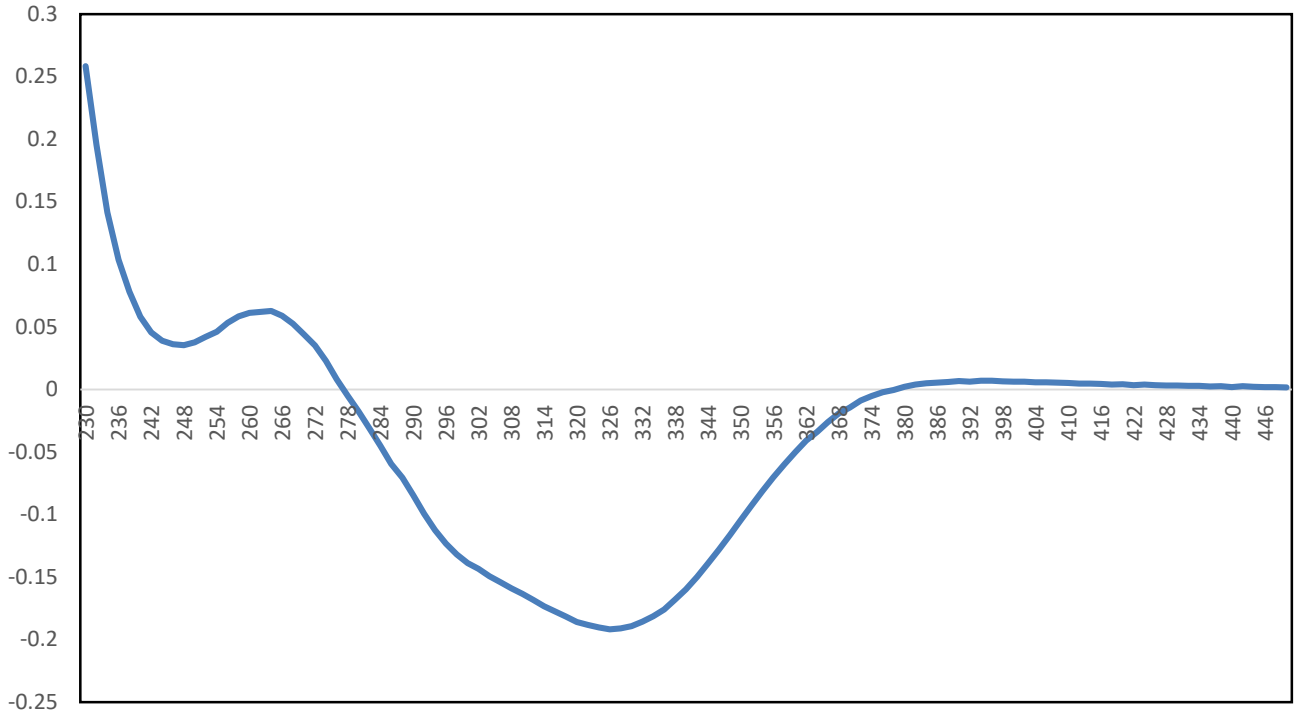
Northern Tasmania leaf removal CHA

	Yield (t/ha)		TSS (°Be)		pH		TA (g/L)	
	2010	2011	2010	2011	2010	2011	2010	2011
Control	15.7	10.4	9.2	9.8	2.84	3.01 b	13.6	14.9
Pre-flowering	-	8.2	-	9.9	-	2.91 a	-	15.3
Pea-sized berries	14.0	12.4	9.2	9.7	2.84	2.96 ab	13.3	14.8
Veraison	15.1	8.4	9.1	9.7	2.79	2.95 ab	14.2	15.1

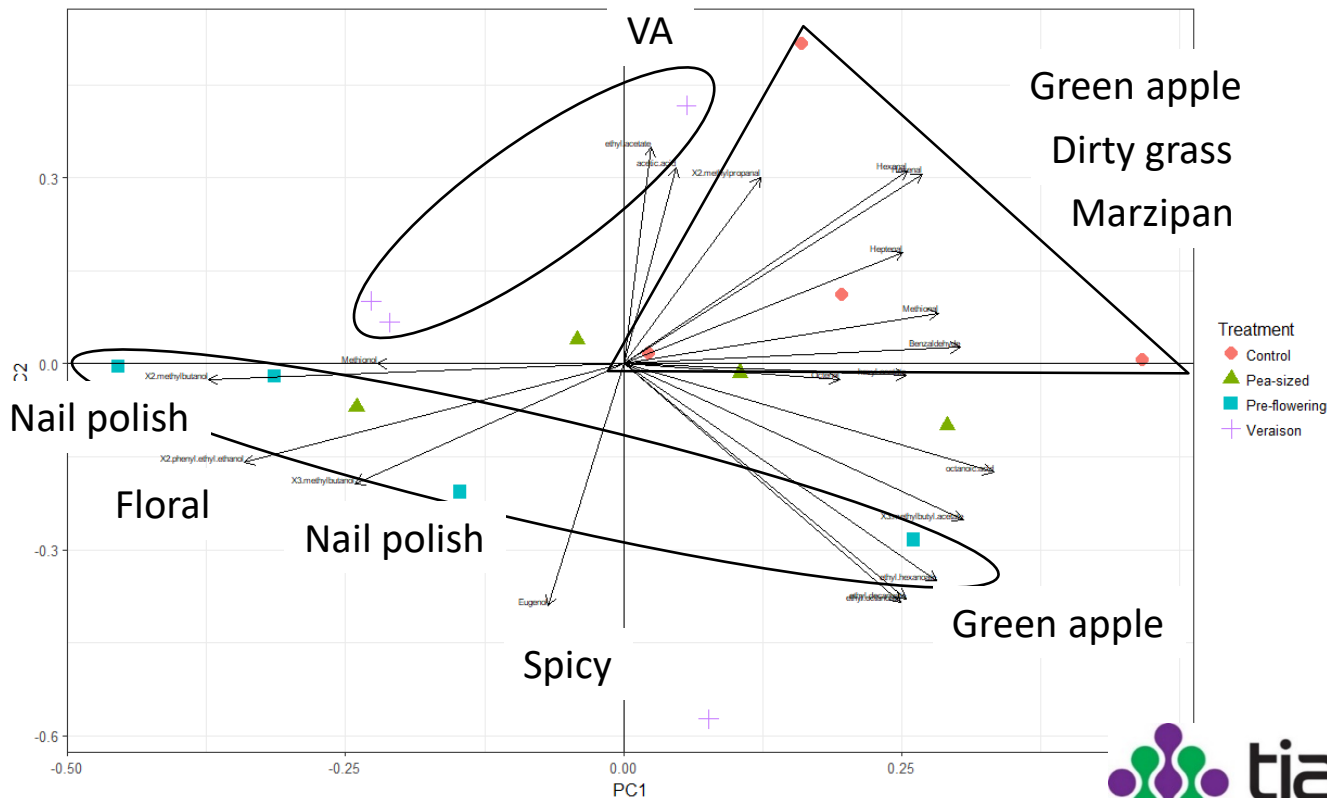
Northern Tasmania leaf removal CHA

– UV-vis phenolic fingerprint aged sparkling wine

PC2

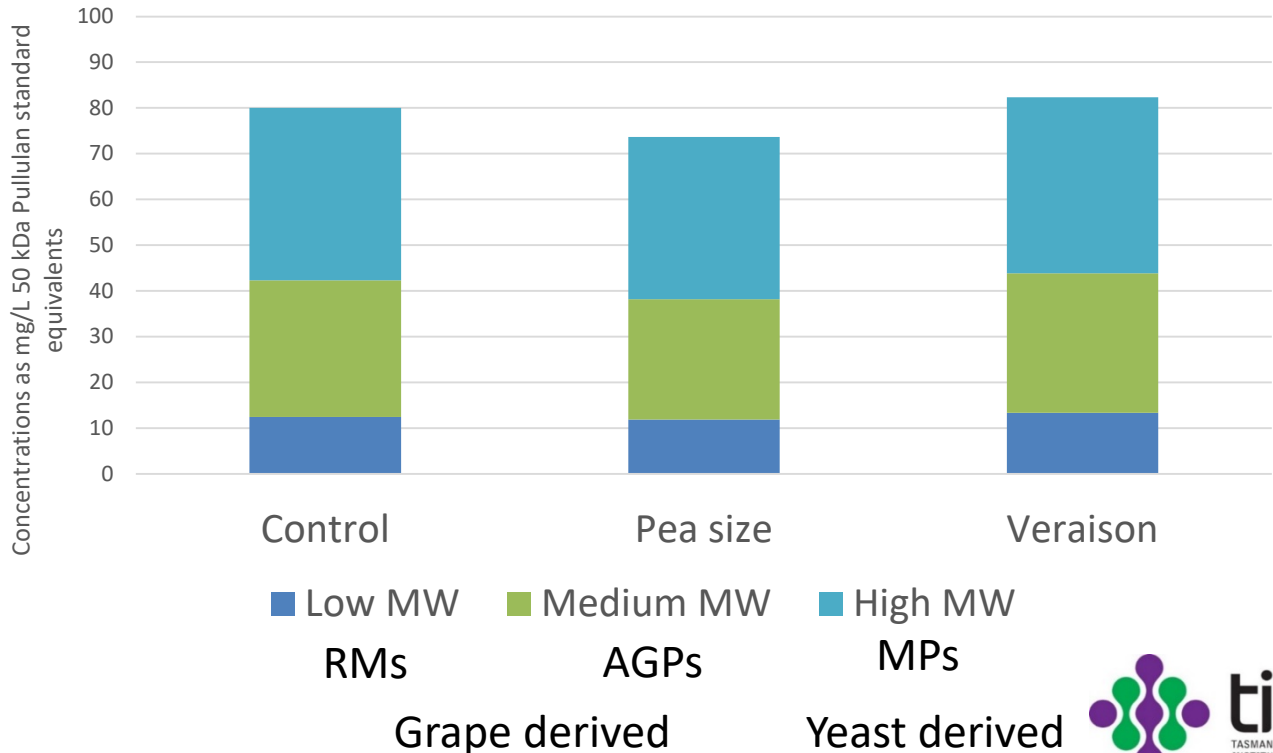


2011 volatiles



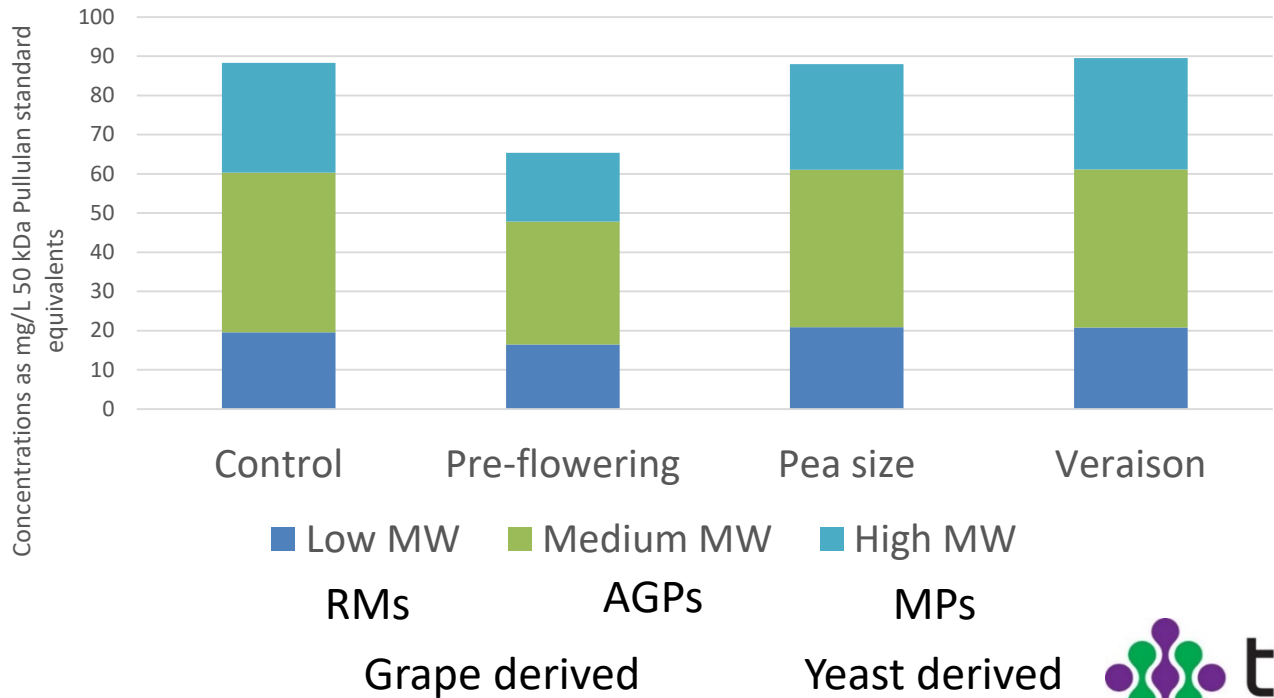


2010 polysaccharides





2011 polysaccharides



Next steps

- Still interpreting
 - Interpretation of wine styles
 - Preferences in base wines
 - Preferences in sparkling wines
 - Other tasting data to be attributed to compounds identified
- Other trials
 - Leaf removal PIN
 - Leaf removal different sites
 - Crop load PIN
 - Cane or spur pruning PIN and CHA

Acknowledgements

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Current project

- TIA
 - Hanna Westmore, Linda Donachie, Rocco Longo
- Wine Australia

- AWRI
 - Mark Solomon, Vicky Amora, Stella Kassara, Laura Bey, Alex Schulkin, Dr Leigh Francis, Dr Dimi Capone, Dr Natoiya Lloyd, Dr Luca Nicolotti
- Wine TQ
- Hill-Smith Family Vineyards
 - Louise Rose, Theresa Heuzenroeder
- Josef Chromy Wines
 - Jeremy Dineen
- Apogee Tasmania
 - Andrew Pirie
- Brown Brothers
- Red Brick Road Cider



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