



The Australian Wine
Research Institute

Adaption in the vineyard to a water-limited future – sunscreens and water budgeting

to improve farm performance by adopting climate adaptation strategies in
Victorian Wine Grape industry



Jobs,
Precincts
and Regions



The Australian Wine
Research Institute

Two projects



The Australian Wine
Research Institute

Project 1

The development of an application-ready practical water budgeting tool for wine-grape growers. This water budgeting tool will allow growers to conduct and audit their water resources (volumes and quality), assist in making critical decisions about which vineyards or blocks should be watered or 'moth-balled' and assist in strategic planning, monitoring and rationing use throughout the season.

Project 2

The development of canopy management tools to assist in maintaining quality grape and wine production to counteract the physical and chemical damage from sunburn. The field trial aims to examine the effect of a commercially available sunscreen product, Surround® on the physical and chemical effects of sunburn, potential fermentation inhibition and impacts on wine sensory attributes.

Project 1

“The updated irrigation budgeting tool builds on existing paper and spreadsheet-based versions through the addition of an intuitive graphic user interface and hover boxes to allow the instructions to be easily accessed. The budgeting tool uses monthly increments and allows the vineyard manager to include expected and actual rainfall as well as water purchases (or inflows into dams) to predict their water requirements for the season. This means the tool is well tuned to both regions along the Murray-Darling where most of the vines’ water requirements are supplied using irrigation and regions where irrigation is used to supplement rainfall”. Assoc. Prof. Paul Petrie, SARDI

Project 1 – Vineyard irrigation budgeting tool



The Australian Wine Research Institute

The Australian Wine Research Institute

Vineyard Irrigation Budgeting Tool

Operations

Display Units:

mm

MI/ha

Allocated

19.26

Unallocated

40.74

Season: 2020-21

Property Name: AWRI Vineyard

Location: Riverland

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
LTA Rainfall (mm):	24	24	28	22	24	24	19	19	12	18	22	24
Expected Rainfall (mm):	40	33	9	77	44	55	88	4	22			99
Actual Rainfall (mm):	20	17	34	2	2	99	5	7	7	33	7	7

Block Name	Area (Ha)	Target Yield	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Allocated
SHI RWT	3.00	75%	0.0	0.0	0.0	0.0	0.3	0.0	0.3	1.0	0.9	0.0	0.0	0.0	2.5
SHI Bin28	1.00	100% (Normal)	0.0	0.0	0.0	0.0	0.5	0.4	1.2	1.0	0.8	0.1	0.1	0.0	4.0
SHI Red Label	1.30	100% (Normal)	0.0	0.0	0.0	0.0	0.6	0.5	1.6	1.2	1.1	0.1	0.1	0.0	5.2
New Block	3.43	75%	0.0	0.0	0.0	0.0	1.1	0.0	2.5	2.1	1.8	0.0	0.0	0.0	7.5

Project 2 – Effect of Surround® on wine sensory properties



The Australian Wine
Research Institute



Images of sunscreen application using Surround® sunscreen in Victorian trial 2019. Images courtesy of Andy Clarke, 2020.



Project 2

“Whilst the use of sunscreens for vines to protect leaves and fruit from sun damage has been shown to be effective, this trial has now also shown that Surround® does not have detrimental effect on fermentation, or wine quality. This outcome dispels a fear from the use of Surround® and its use may result in less downgrades in yield and fruit quality from heat damage through greater uptake”.

Acknowledgments



The Australian Wine
Research Institute

- David Braybrooks vineyard (Faraday)
- Mount Langi Ghiran Winery / Damian Sheehan (Grampians)
- Andrew Clarke – The Dirt Dude
- Kristina Nobis, visiting student from Germany working at the AWRI
- Dr Paul Petrie and Mr Mark Skewes (SARD) – Water Budgetting Tool
- WIC winemaking (Urrbrae, South Australia)
- Members of the AWRI's sensory quality panel
- Department of Jobs, Precincts and Regions – Horticulture Innovation Fund