

Henry Manufacturing 2014 grape trial work – Silvan GII sprayer calibration and setup notes
Calibration and setup conducted by David Manktelow with Chris Henry Feb 2014

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TARGET APPLICATION VOLUME & SPEED

Target Volume	380	l/ha
	9.12	l/100m row
Target speed	4.8	km/hr
Row spacing	2.4	metres
Output required	7.3	l/min total
Note output below =	7.3	l/min

PROPERTY/BLOCK DETAILS

Property	Te Awa Farm		
Date	20/02/2014	Contact	
Crop/cultivar/block	Merlot		
Notes	Three cane VSP for use in Chris Henry 2014 trial work		

SPRAYER/TRACTOR DETAILS

Sprayer make	Silvan GII - six nozzles per side	Tractor make/model	
Pump type/capacity		litres/min	
Tank size		litres	
Fan type	Air shear	Tyre size	
Fan gear		Tyre press	
		PTO covers	
		Notes	

NOZZLING DETAILS

Nozzle pressure	270	kPa	39 PSI	270 kpa required in theory
Gauge pressure		kPa		

Description	Nozzle name	Predicted output	LHS l/min measured	RHS l/min measured	%	Cum%	Nozzle angle
	1 Off	0.0			0.0%	0%	
	2 Off	0.0			0.0%	0%	
Brown	3 D2	0.8			21.5%	21%	
Orange	4 D3	1.0			28.5%	50%	
Orange	5 D3	1.0			28.5%	79%	
Brown	6 D2	0.8			21.5%	100%	
Output from one side (l/min)		3.7	0.00	0.00			
Total output (l/min)		7.3	0%	0%	Deviation each side		

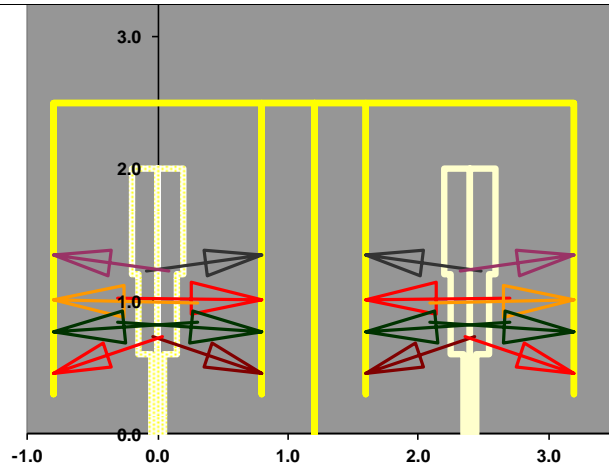
TRAVEL SPEEDS AND OUTPUT VOLUMES

Engine RPM	1800	PTO RPM	540			
				l/100m of		
Gear/Ratio	Dist (m)	Time (sec)	km/hr	l/ha	row	Volume (l) to spray block
M2 1800 rpm	60	45	4.8	380	9	0

Calibration checks:

Travel speed using a hand held GPS, electronic flow meter flow cal bucket measure pulse count. Note nozzle outputs shown above are theoretical for D2 and D3 restrictor disks – a check on the individual nozzle outputs would still be recommended as the theoretical operating pressure for these nozzles to achieve target flows is much less than the operating pressure observed (120 psi on tractor pump gauge versus 40 psi required in theory).

Sprayer setup visualisation



Schematic of sprayer setup to target bunch zone using four nozzles per side



Detail of left hand outer head in operation



Detail of right hand side of sprayer in operation



Detail of back end of sprayer in operation



Folded water sensitive papers pinned into bunch zone for coverage monitoring test



Side view of canopy bunch zone – note three cane VSP with a high level of bunch exposure. Bunches in veraison 20/2/2014



Sprayer and tractor unit



Long view of sprayer operating in block for coverage test

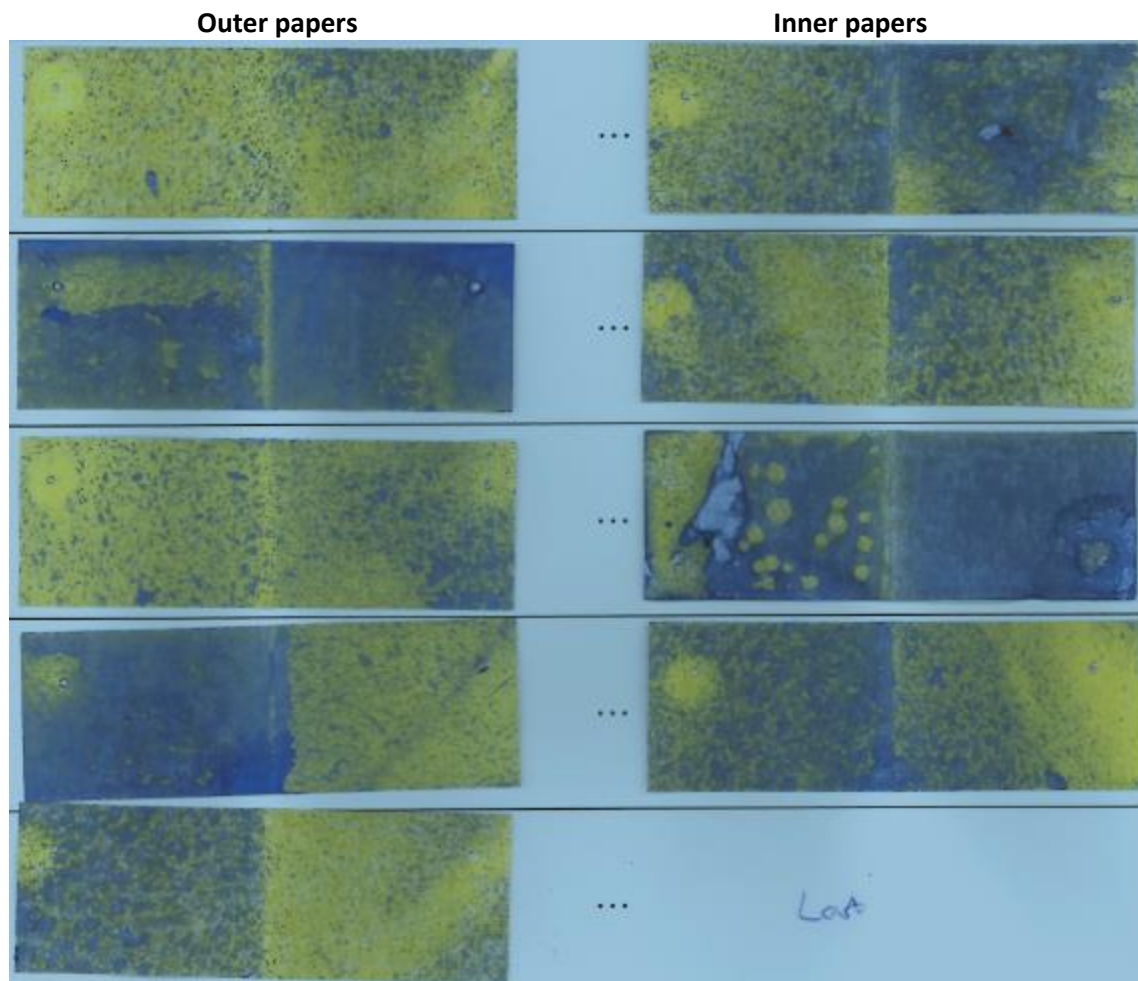
20/2/2014 Henry Manufacturing sprayer setup and coverage test 1 – 10 water sensitive papers folded and pinned into inner (5) and outer (5) bunchzone positions.

Te Awa Farm. Merlot. Three cane VSP. 2.4m rows. High level of bunch exposure.

Silvan GII sprayer. 4.8 km/hr. 380 l/ha. Single pass along row.

Four nozzles per side operating to target bunchzone.

Weather: 10km/hr cross wind. Temp ca. 20°C.



Judgement: Good droplet size (fines) giving excellent coverage on all paper surfaces. Runoff evident on 40-50% of surfaces. Good coverage observed in bunches with some wetting to runoff, but obscured back sides of bunches showing low deposits.

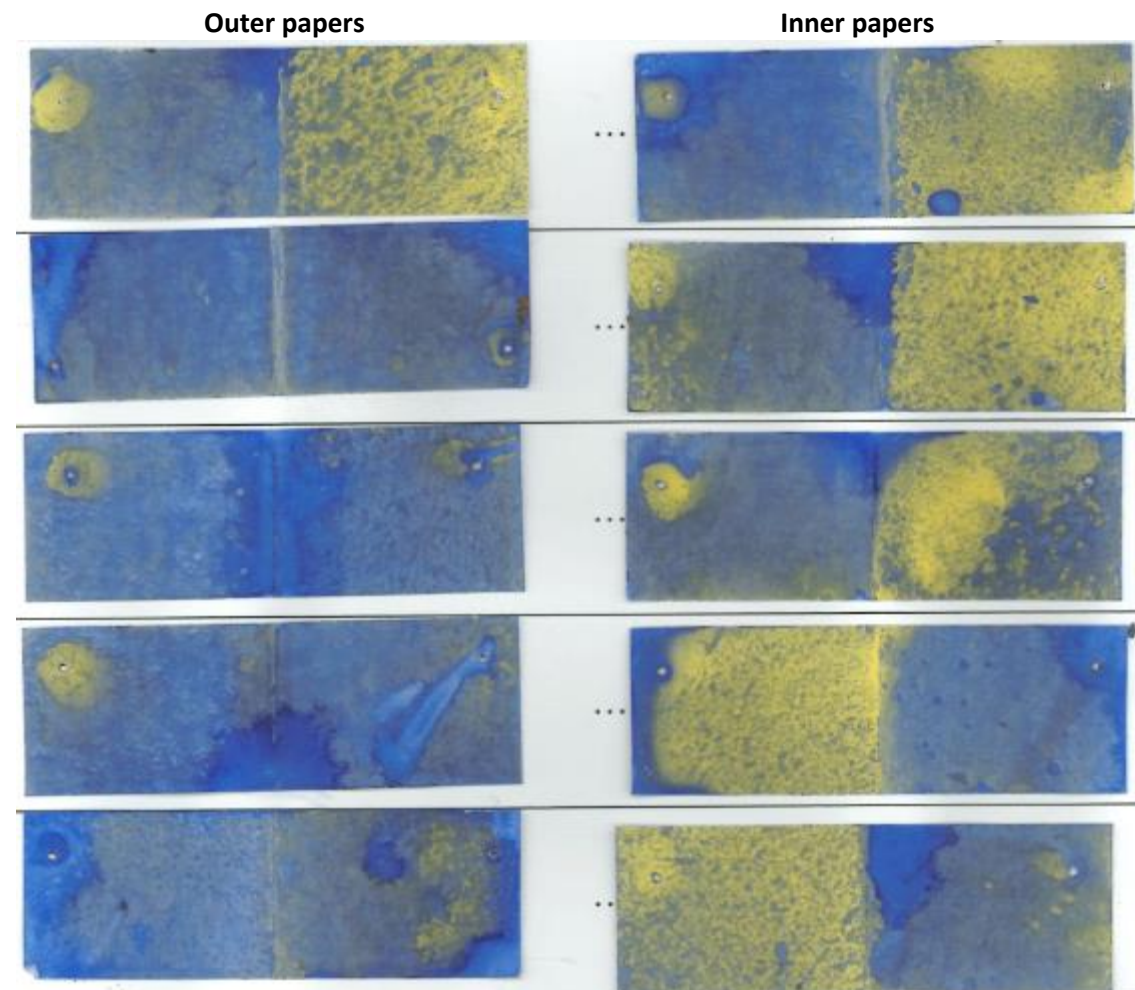
20/2/2014 Henry Manufacturing sprayer setup and coverage test 2 – 10 water sensitive papers folded and pinned into inner (5) and outer (5) bunchzone positions.

Te Awa Farm. Merlot. Three cane VSP. 2.4m rows. High level of bunch exposure.

Silvan GII sprayer. 4.8 km/hr. 760 l/ha. A double pass up and back along row (380 l/ha per pass), with bunches still wet at time of second pass.

Four nozzles per side operating to target bunchzone.

Weather: 10km/hr cross wind. Temp ca. 20°C.



Judgement: Excellent coverage on all paper surfaces with visibly increased deposits and deposit evenness on bunches compared with a single pass. Runoff evident on 75% of surfaces.