

Dilute Water Volume Spray Assessment Guide for Vines in the Riverina

Bayer CropScience is currently developing guides to help growers in the Riverina to assess the chemical rate/dose to use at various stages of the growing vines. Using the indicated dilute water volume, growers can choose to use whatever water rate they are comfortable with assuming they are getting even coverage. This guide should help growers assess their vines dilute volume so then they can work out their X factor and therefore their mixing rate. If growers switch to spray dilute then its even easier to calculate chemical rate/dose requirements. These guides will continue to be distributed through the season. With the current tools available many growers can find it difficult to assess how much water is needed to cover the canopy effectively at various growth stages.

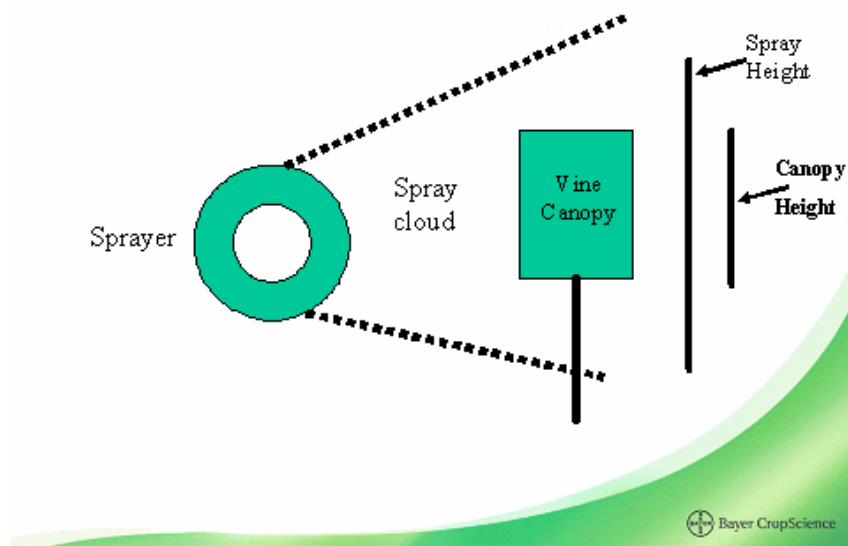
Below is an outline how the water volumes were determined and then follows pictures of the canopies used and water rates developed along with concentration factor calculations for various products.

1. Sprayed with a hand wand (known output cone nozzle) the 2 panels of canopy with sufficient water to reach the Point of Run Off (all leaves and shoots thoroughly wet but not past dripping wet), As is used for the determination of the label rate.
2. Measured the volume used.
3. Added a 25% factor to cater for commercial machines which cannot follow the variations in canopy height (as we do with a hand wand).
4. Converted the average volume used/panel to a volume per 100m of row (or per Ha depending on row width).

Note: Unit Canopy Row method would have given a much lower volume at this growth stage however it is not possible to narrow the spray cloud down enough a 0 cm high canopy so most people start with a minimum dilute volume of ~500l/Ha.

This might show the 'wastage factor issue' this is why we add 25%.

Spray cloud height vs canopy height



Note: As the vines grow the hand sprayed volume will probably get closer to the UCR number.


Single Cordon spur pruned vine



Vineyard:	McWilliams Hanwood
Variety:	Cabernet sauvignon
Pruning:	Spur
Row Width:	3.3m
Growth Stage:	EL 27 2mm berries
Canopy Height:	1.2m
Canopy Width:	1.2m
Canopy Density:	Medium
Assessment Date:	9/11/2007
Indicative Dilute Water Vol:	44 L/100m (1330 L/Ha)
Flint Label @ 15g/100L:	200 g/Ha Or 7 g / 100 m
Example;	
Typical 'Chosen' Water Volume	500 l/Ha
Concentration Factor	$1330/500 = 2.7$
Mixing Rate Flint	$2.7 \times 15 \text{ g} = 40 \text{ g}$ Flint mixed with every 100 l Water



X-Factor Examples for the Single Cordon spur pruned vine

FLINT 	
Dilute Water Volume:	1330L/Ha
Applied Water Volume:	500L/Ha
X-Factor:	$1330 \div 500 = 2.7$
Label Rate:	15g/100L
Concentrate Mixing Rate:	$15 \times 2.7 = 40\text{g}/100\text{L}$
Prosper Applied /Ha	200 g

Apply the same amount of chemical regardless of the water rate, and increase the chemical rate as the canopy grows.

Bayfidan [®]	
Dilute Water Volume:	1330L/Ha
Applied Water Volume:	800L/Ha
X-Factor:	$1330 \div 800 = 1.67$
Label Rate:	10ml/100L
Concentrate Rate:	$10 \times 1.67 = 16.7\text{ml}/100\text{L}$
Bayfidan Applied /Ha	134 ml

Double Cordon spur pruned vine




Vineyard:	McWilliams Hanwood
Variety:	Shiraz
Pruning:	Spur
Row Width:	3.6m
Growth Stage:	EL 29 (berries 2 mm)
Canopy Height:	2.0m
Canopy Width:	1.4m
Canopy Density:	Medium-Dense
Assessment Date:	9/11/2007
Indicative Dilute Water Vol:	58 L/100m (1620 L/Ha)
Flint Label rate @ 15 g/100L:	243 g /Ha (@ 3.6m rows) 9 g/100m
Example;	
Typical 'Chosen' Water Volume	600 l/Ha
Concentration Factor	$1620/600 = 2.7$
Mixing Rate FLINT	$2.7 \times 15\text{g} = 40\text{ g Flint}$ mixed with every 100 l Water.



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X-Factor Examples for the Double Cordon spur pruned vine

FLINT 	
Dilute Water Volume:	1620L/Ha
Applied Water Volume:	700L/Ha
X-Factor:	$1620 \div 700 = 2.3$
Label Rate:	15g/100L
Concentrate Mixing Rate:	$15 \times 2.3 = 34.5\text{g}/100\text{L}$
Prosper Applied /Ha	243 g

Apply the same amount of chemical regardless of the water rate, and increase the chemical rate as the canopy grows.

Bayfidan[®]	
Dilute Water Volume:	1620L/Ha
Applied Water Volume:	500L/Ha
X-Factor:	$1620 \div 500 = 3.2$
Label Rate:	10ml/100L
Concentrate Rate:	$10 \times 3.2 = 32\text{ml}/100\text{L}$
Bayfidan Applied /Ha	160 ml

Disclaimer:

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