



Calculating chemical rates for vines

Viti-note Summary

- Dilute spraying
- Concentrate spraying

Other topics in this Viti-Notes series include:

- Targeting sprays for vineyard pests and diseases
- Maintaining product performance in spray mixes
- Selecting and using spray adjuvants
- Understanding chemical 'modes of action'
- Managing chemical resistance in the vineyard
- Equipment adjustment and evaluation to maximise spray coverage
- A single rate per hectare – why it shouldn't be used
- Determining chemical rates for dilute and concentrate spraying
- Determining dilute water volumes for spraying
- *Calculating chemical rates for vines*

Once the dilute spray volume has been determined, the amount of chemical to put in the spray tank needs to be calculated.

Dilute spraying

For example, 'point of run-off' (dilute spraying) was determined to be 1,500 L/ha in a vineyard. The amount of agrochemical to add to the spray tank is specified on the label in mL per 100 L of water (e.g. 10 mL/100 L). In this example, the spray tank has a volume of 2,000 L.

Sample calculation:

Amount of chemical added to a 2,000 litre tank = $10 \text{ mL}/100 \text{ L} \times 2,000 \text{ L} = 200 \text{ mL}$

Once mixed, the spray is applied to the vines at a rate of 1,500 L/ha (previously determined point of run-off).

The chemical application rate per hectare can also be calculated:

Sample calculation:

Application rate = $10 \text{ mL}/100 \text{ L} \times 1,500 \text{ L/ha} = 150 \text{ mL/ha}$

Concentrate spraying

To determine water rate for concentrate spraying, the dilute water volume (point of run-off) is used in the calculation. This determines the 'concentration factor' which determines how much chemical to put into the spray tank.

For example, a grower may wish to apply 500 L/ha to reduce lost time filling up and returning to the chemical shed.

Providing coverage is adequate at 500 L/ha, a 'concentration factor' can be used to apply equivalent agrochemical (as the dilute spray rate) with less water. The calculation uses the dilute water volume divided by the concentrate water volume:

Sample calculation:

$1500 \text{ L} \div 500 \text{ L} = 3$ (i.e. 3 x concentration factor)

The dilute label rate from the chemical label is 10 mL/100 L then the concentrate mixing rate becomes

Sample calculation:

$3 \times 10 \text{ mL}/100 \text{ L} = 30 \text{ mL}/100 \text{ L}$

This then becomes the chemical rate per 100 L that is added to the tank.

Sample calculation:

Amount of chemical added to a 2,000 litre tank = $30 \text{ mL}/100 \text{ L} \times 2,000 \text{ L} = 600 \text{ mL}$

Calculating chemical rates for vines

Table 1. Details used in example below.

Vine canopy:	Dense late season VSP
Dilute label rate:	10 mL/100 L (from the chemical label)
Spray tank volume:	2,000 L
Dilute spray volume to 'thoroughly wet' the canopy being sprayed:	1,500 L/ha

The chemical application rate per hectare can also be calculated:

Sample calculation:

Application rate = 30 mL/100 L X 50 0L/ha = 150 mL/ha

NOTE: CONCENTRATION FACTORS FOR DETERMINING A CONCENTRATE MIXING RATE CAN ONLY BE CALCULATED ONCE THE DILUTE VOLUME HAS BEEN DETERMINED.

Acknowledgement

The Australian Wine Research Institute would like to acknowledge the Cooperative Research Centre for Viticulture (CRCV) and all involved in the Viti-notes series (1996 - 2006).

Further information

Contact the AWRI helpdesk on 08 8313 6600 or helpdesk@awri.com.au

www.awri.com.au

For region specific training in pest and disease control, contact the AWRI about the Research to Practice module: 'Integrated Pest Management for changing viticultural environments'.

Other resources can also be found on the Wine Australia website: <http://research.wineaustralia.com/>

Agrochemical information

Information about agrochemicals is published annually by the AWRI in a booklet titled *Agrochemicals registered for use in Australian viticulture*, commonly known as the 'Dog book'. Access the latest version and the app from http://www.awri.com.au/industry_support/viticulture/agrochemicals/agrochemical_booklet/.



The Australian Wine
Research Institute

Wine
Australia
for
Australian
Wine