

Crops(s) **Grape**

Disease(s) **Downy mildew**

Resistance management strategy for:

Group 4	Phenylamides (PA);
Group 11	Quinone outside inhibitors (QoI);
Group 11 + 3	QoI + Demethylation inhibitors (DMI);
Group 21	Quinone inside inhibitors (QiI);
Group 40	Carboxylic acid amides (CAA);
Group 45	Quinone outside inhibitor, stigmatellin binding type (QoSI);
Group 45+40	QoSI + CAA; and
Group 49	Oxysterol binding protein homologue inhibitors (OSBPI).

Guidelines:

1. Apply all these fungicides preventatively. **Group 4** fungicides should be applied before the first sign of oilspots or as soon as possible after an infection period.
2. **Group 49** fungicides should be applied prior to infection and only in mixtures with effective fungicides applied at an effective rate from a different cross resistance group. The mixing partner should give effective control of downy mildew at the rate and interval selected. Only apply **Group 49** for a maximum of one in every three sprays of the total number of downy mildew sprays, and no more than two applications per season.
3. Mixtures are defined as co-formulations or tank mixes at label rate of alternative mode of action.
4. Apply a maximum of two consecutive applications of any one group.
5. Start preventative disease control sprays using **non-Group 4** protectant fungicides, typically when shoots are 10-20cm long. Continue spraying at intervals of 7-21 days depending on disease pressure, label directions and rate of vine growth.
6. Limit the use of **Group 4** fungicides to periods when conditions favour disease development. Always apply **Group 4** fungicides in mixtures.
7. **Do not** apply **Group 11** (including **Group 11+3**) consecutively when applying alone.
8. Apply a maximum of 2 sprays per season of **Group 11** (including mixtures) **Group 45+40** and **Group 49**.

Please note:

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9. **Do not** apply a spray containing **Group 40** as the last spray of the season.
10. Only apply a spray containing **Group 40** a maximum of 50% of the total number of downy mildew sprays.

	Group				
	4	11, 11+ 3	21+M1	40, 45+40 & 40+M3	49
Maximum number of consecutive applications	2	none	2	2	2
Maximum number of solo sprays	None	2	3	2 (50%)	None
Maximum number of sprays per season	4-mix	2	3	4-mix (50%)*	2-mix
Areas of higher agronomic risk	mix	mix	N/A	mix	mix

* Refer to points 8 & 10

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