

Crop(s)	Grape
Disease(s)	Downy mildew

Resistance management strategy for:

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

Guidelines

1. 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.
2. **Group 4** fungicides should be applied as soon as possible after an infection period, and before the first sign of oilspots. Limit the use of **Group 4** fungicides to periods when conditions favour disease development. Always apply **Group 4** fungicides in mixtures.
3. **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. A maximum of two **Group 49** applications may be made per season. Only apply **Group 49** for a maximum of one in every three sprays of the total number of downy mildew sprays. A **Group 49** application must be followed by at least two applications of a different group(s) before being reapplied.

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 a spray containing **Group 40**, or **40+49** as a maximum of 33% of the total number of downy mildew sprays. A **Group 49**, or **40+49** application must be followed by at least two applications of a different group(s) before being reapplied.

Please note:

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4. Fungicide mixtures are defined as co-formulations, or tank mixes at label rate of an alternative mode of action.
5. Apply a maximum of two consecutive applications of **Group 4, 21, 40, or 45+40** containing fungicides.
6. **Do not** apply **Group 11** (including mixture formulations) consecutively.
7. Apply a maximum of two sprays per season of **Group 11** (including mixtures) **Group 45+40, Group 40 +49 and Group 49**.
8. **Do not** apply a spray containing **Group 40** as the last spray of the season. Only apply a spray containing **Group 40** a maximum of 50% of the total number of downy mildew sprays.
9. Apply a maximum of three **Group 21** containing sprays per season, and a maximum of two consecutive sprays.

	Group						
	4	11 (inc. 11 + 3)	21	40*	45 + 40	40 + 49	49
Max. number of consecutive applications	2	None	2	2	2	None	None
Max. number of solo sprays	None	2	3	2 (50%)	None	2	None
Max. number of sprays per season	4-mix	2	3	4-mix (50%)	2	2 (33%)**	2-mix
Areas of higher agronomic risk	Mix	Mix	N/A	Mix	N/A	N/A	Mix

* Refer to point 8.

** Refer to point 3

N.B. Consecutive sprays include mixture formulations.

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