WHAT IS FUNGICIDE RESISTANCE?

Resistance by fungal pathogens to fungicides usually evolves following the intensive use of fungicides for disease control. In any fungal population there are likely to be individuals that have some degree of natural resistance and which are less susceptible to fungicides, even before the chemicals are used.

Resistance arises through the **incorrect use of fungicides** by selection of the resistant forms of fungi. Continued use of a fungicide or fungicide chemical group can result in a significant build-up of resistant individuals in the fungal population – to the point where that particular product, or other products from the same chemical group, is no longer effective.

In some cases, removal of the selection pressure can result in the fungal population regaining its sensitivity to the fungicide group, but this is not always the case.

The risk of fungicide resistance developing varies between different chemical groups and different fungal pathogens, such that specific strategies are recommended for those situations considered to carry the highest risk.

WHAT CAN BE DONE TO PREVENT OR DELAY RESISTANCE?

The most common approach to managing fungicide resistance is through responsible use of fungicides, of which the resistance management strategies presented by Crop Life are good examples.

In their most basic form, these strategies advocate **rotation of fungicide products** with a different chemical activity group to prevent over-use of any one product or activity group.

In Australia, all fungicide products are labelled to identify which activity group they belong to. The activity group is indicated by a number (or letter/number combination) code on the product label.

GROUP	11	FUNGICIDE

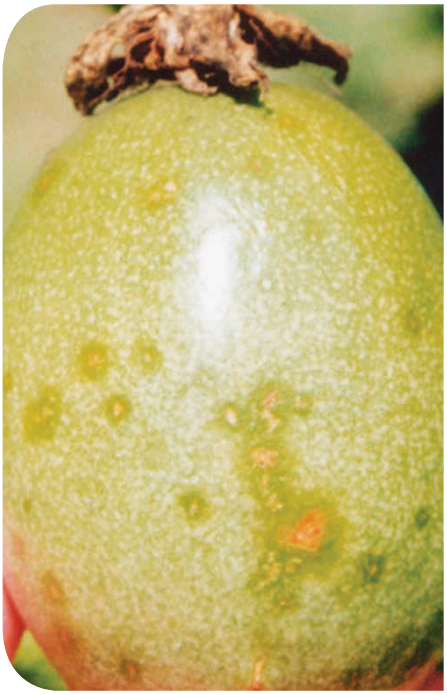
GROUP	M1	FUNGICIDE

Selecting the most effective or appropriate way to apply fungicides will make them work better and assist in delaying the development of resistance. A good understanding of the pathogen's life cycle and epidemiology will also help in the selection of the most appropriate application method.

As a general rule, targeted applications to control a certain development stage or population level are most effective, whereas shotgun approaches like application of fungicides through irrigation systems could accelerate the development of resistance by exposing a large portion of the fungal population to sub-lethal rates.

Particular attention should be given to label recommendations, rates and coverage. Adherence to suggested disease threshold levels is also good resistance management practice.

CROP LIFE HAS A RECOMMENDED RESISTANCE MANAGEMENT STRATEGY FOR ONE OF THE MOST COMMON FUNGAL ISSUES IN PASSIONFRUIT PRODUCTION — ALTERNATA SPOT



RESISTANCE MANAGEMENT STRATEGY FOR:

Disease(s): Alternata Spot (Alternaria spp.)

Group 2 Dicarboximide (acronym); and

Group 11 Quinone outside Inhibitors (QoI).

1. Maintain a protective cover with a protectant fungicide such as mancozeb.
2. Limit the use of Group 2 to strategic periods, i.e. before, during and after extended wet periods.
3. Always tank mix the Group 2 fungicide with a protectant such as mancozeb.
4. Do not apply more than four Group 2 sprays in a season.
5. The total number of Group 11 sprays should be no more than one-third of the total number of fungicide sprays per season.
6. Do not apply more than two consecutive applications of a Group 11 spray.
7. If two consecutive applications of a Group 11 spray are applied, they must be followed by at least the same number of sprays from an alternative chemical group.

CropLife Australia represents the innovators, developers, manufacturers, formulators and registrants of crop protection and ag-biotechnology products. CropLife is a not-for-profit organisation, wholly funded by membership fees.

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