

GROUP	27	HERBICIDE
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## Moderate resistance risk

Resistance to the Group 27 (HPPD inhibitors) herbicide mode of action is known for a number of populations of *Amaranthus* species in the United States, which demonstrates the potential for weeds to develop resistance to this mode of action. Continuous usage of Group 27 herbicides in the United States has resulted in resistance in *Amaranthus* species in a relatively short time.

There is one known population of wild radish resistant to Group 27 herbicides in Australia, however, continued resistance development to this mode of action is inevitable given its continued usage.

## Broadacre cropping

Of particular concern in Australia is the potential for development of Group 27 resistance in wild radish. In some areas, because of a lack of alternate herbicide options, growers are heavily reliant on Group 27 herbicides for control of wild radish populations. It is essential to integrate additional cultural weed control techniques to reduce the seed bank and minimise seed set, thereby decreasing the selection pressure on Group 27 herbicides. Where Group 27 (HPPD inhibitors) herbicides are used post emergent it's important to target small weeds with robust rates. Always mix Group 27 herbicides with an effective alternate mode of action herbicide, such as Group 6 products like bromoxynil, which are synergistic, Group 4 products, such as MCPA, or other alternate mode of action herbicides.

Where Group 27 (HPPD inhibitors) herbicides are used pre-emergent in cereals, it is important to use an alternative mode of action as a follow-up spray to control any subsequent survivors. If two Group 27 herbicides are used in one season, a herbicide from an alternate mode of action should be used after the first or second applications of Group 27 to control any weed survivors.

## Fallow

In high summer rainfall areas, weed control in fallow is heavily reliant on herbicides. Multiple sprays are often required to maintain a clean fallow between winter crops. Integrated Weed Management principles should be incorporated wherever possible, including cultivation - the double knock technique, grazing and combining more than one mode of action in a single application.

## Rice

Where benzofenap has been applied to rice, a follow-up application of MCPA or bentazone and MCPA is recommended where appropriate to provide a secondary mode of action. To reduce the likelihood of resistant weeds developing it is recommended that products containing benzofenap (e.g. Taipan®) not be used in consecutive rice crops.

### Please note:

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## Sugarcane

It is critical to manage weeds effectively to protect sugarcane from yield loss due to competition. Weed management that relies on Group 27 herbicides should incorporate Integrated Weed Management (IWM) principles that include chemical and non-chemical methods of weed control. Chemical methods of weed control should include rotation and/or tank mixing Group 27 herbicides with herbicides from other modes of action and may also include the use of non-selective knockdown herbicides and techniques such as "double knock" and spot spraying. Non-chemical methods of weed control include the use of fallow crops, controlling weed seed set, regular slashing area around the crop, good machinery hygiene, mechanical control in plant cane and a trash blankets in ratoon crops.

The above recommendations should be incorporated into an Integrated Weed Management (IWM) program. In all cases try to ensure surviving weeds from any treatment do not set and shed viable seed. Keep to integrated strategies mentioned in this brochure including cultural weed control techniques to reduce the weed seedbank. Make sure you mix and rotate herbicides from different mode of action groups. Always consult the product label prior to use.

Chemical family	Active constituent (first registered trade name)
<b>GROUP 27</b>	
<b>Inhibition of 4-hydroxyphenyl-pyruvate dioxygenase (HPPD inhibitors)</b>	
Isoxazoles	isoxaflutole (Balance® Palmero TX®*)
Pyrazoles	benzofenap (Taipan ®), pyrasulfotole (Galaxy®, Infinity Ultra®*, Precept®*, Velocity®*), topramezone (Frequency®)
Triketones	bicyclopyrone (Talinor®*), mesotrione (Callisto®)

\* This product contains more than one active constituent

### Notes:

List of chemical families, approved active constituents and, in parenthesis, the trade name of the first registered product or successor. Refer to the APVMA website ([www.apvma.gov.au](http://www.apvma.gov.au)) to obtain a complete list of registered products from the PUBCRIS database.

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