SPECIFIC GUIDELINES FOR GROUP 22 HERBICIDES

GROUP	22	HERBICIDE

Moderate resistance risk:

Globally herbicide resistance to the Group 22 herbicide mode of action has been confirmed and documented in more than 30 weed species across 16 countries.

Group 22 resistance exists in Australia in 10 species including more than 50 populations of annual ryegrass, and in 2 species of barley grass across more than 100 populations, blackberry nightshade, crowsfoot grass, capeweed, fleabane, Pennsylvanian cudweed, squirrel-tailed fescue (silver grass) and small square weed. Most instances have occurred in long-term lucerne stands treated regularly with a Group 22 herbicide but Group 22 resistant barley grass has also occurred in no-till situations.

The following factors are common to most cases of Group 22 resistance:

- A Group 22 herbicide is the major or only herbicide used;
- A Group 22 herbicide has been used for 12 – 15 years or more; and
- There has been minimal or no soil disturbance following application.

The risk of resistance to Group 22 herbicides is higher in minimum/zero tillage broadacre cropping. Other high resistance risk situations include: irrigated clover pivots, orchards, vineyards or pure lucerne stands where frequent applications of a Group 22 herbicide are made each season, cultivation is not used and there is reliance on a Group 22 herbicide alone for weed control.

To assist in delaying the onset of resistance, consider alternating Group 22 herbicides with herbicides from other modes of action. For example, Group 10 (e.g. glufosinate) or Group 34 (e.g. amitrole) or Group 9 (e.g. glyphosate).

Below are strategies that address these high resistance risk situations to reduce the risk of Group 22 resistance developing.

Minimum or zero tillage

1. Rotate Group 22 herbicides with other knockdown herbicides with a different mode of action, such as Group 9 (e.g. glyphosate). A full label rate for the weed size targeted should be used for resistance management.

2. Consider utilising the double knock technique[2] where glyphosate is sprayed first followed within 1 - 7 days by a paraquat application. A full label rate for the weed size targeted should be used for the paraquat application for resistance management.

3. Consider occasional mechanical cultivation to aid weed control.

Lucerne

1. If using a Group 22 herbicide for winter cleaning, where possible include another mode of action e.g. Group 5.

2. Use alternative modes of action to selectively control grass and broadleaf weeds.

3. Rotate Group 22 herbicides with other knockdown herbicides with a different mode of action (such as Group 9 e.g. glyphosate) prior to sowing lucerne and prior to sowing future crops in that paddock.

Horticulture

1. Rotate Group 22 herbicides with other knockdown herbicides with a different mode of action, such as Group 10 (e.g. glufosinate), Group 34 (e.g. amitrole) or Group 9 (e.g. glyphosate).

2. Where possible, use residual herbicides (that are effective on the same weeds as the Group 22 herbicides) where applicable either alone or in mixture with Group 22 herbicides.

3. Where possible use alternative modes of action to selectively control grass and broadleaf weeds.

4. Consider using the double knock technique where glyphosate is sprayed followed within 1-7 days by a paraquat application. A full label rate for the weed size targeted should be used for the paraquat application for resistance management.

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

[2] *The double knock technique is defined as using a full cut cultivation OR the full label rate of a paraquat-based product (Group L) following the glyphosate (Group M) knockdown application*

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)
GROUP 22 **Inhibitors of photosynthesis at photosystem I via electron diversion (PSI inhibitors)**	
Pyridiniums	diquat (Reglone®, Spray Seed®*), paraquat (Alliance®*, Gramoxone®, Spray Seed®*)

** This product contains more than one active constituent*

Notes:

1. 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) to obtain a complete list of registered products from the PUBCRIS database.