

NORTHERN WHEATBELT REGIONAL FACT SHEET



WESTERN REGION

TAKE THE TEST FOR HERBICIDE RESISTANCE

Knowing which herbicide modes of action (MOA) are still effective can avoid in-crop herbicide failures and allow growers to develop long term weed management plans.

KEY POINTS

- Wild radish is the most problematic weed on the sandplain soils of the northern wheatbelt.
- Multiple resistance to commonly used selective herbicides is increasing in local wild radish populations.
- Incidence of annual ryegrass with Group A (diclofop), Group B, Group D (trifluralin) and multiple herbicide resistance continues to increase across the northern wheatbelt.
- Clethodim (Select®) has had the biggest increase in annual ryegrass resistance levels since 2003 and there is now resistance to high label rates in the northern wheatbelt.
- Testing wild radish and ryegrass populations to assess herbicide resistance status can ensure effective herbicides are applied in-crop and results can be used to help develop management strategies.
- Glyphosate effectiveness, especially, can be protected by monitoring resistance after spraying and using integrated weed control tactics.
- Multiple non-herbicide and herbicide strategies are required within each cropping season to prevent weed and weed seed blow-outs.
- Always use recommended label rates of herbicides to slow the evolution of herbicide resistance and prolong herbicide efficacy.

Testing weeds that survive a herbicide application will help diagnose any resistance problems and allow growers to get on top of this issue before seed set in affected patches.

Resistance testing is recommended as part of an integrated weed management (IWM) and monitoring strategy, as promoted by the national grains industry's *WeedSmart* campaign which is aimed at combating herbicide resistance (www.weedsmart.org.au).

Resistance testing services

There are two weed plant resistance testing services available to growers to check if a herbicide MOA will work in-crop this year:

- Dr Peter Boutsalis' Plant Science Consulting in South Australia offers the Syngenta Quick Test™ for resistance to all herbicide MOAs, except trifluralin, with a turnaround time of four to six weeks.
- Syngenta offers a RISQ (Resistance In-Season Quick) test for resistance to AXIAL®, TOPIK® and Select® (Group A), Crusader® (Group B) and glyphosate (Group M) herbicides in ryegrass and wild oats. It has a turnaround time of 10-14 days.

If resistance is found in canola, the Australian Glyphosate Sustainability Working Group (AGSWG) recommends using late season seed set control strategies - especially where Clethodim resistance is present.

Weed samples for resistance testing should:

- Come from high risk paddocks (including those that have a 10-year or longer history of no-till or where fences/firebreaks have been repeatedly sprayed with glyphosate).
- Be taken from areas where weeds have survived a herbicide application.
- Include about 50-100 plants per herbicide for a four herbicide analysis.
- Be collected before applying an in-crop herbicide.
- Be less than five-six leaf stage for broadleaf species.
- Be at one-two leaf stage for grasses – although grasses can be tested through to late tillering.

Later in the year, weed seed samples can be tested for herbicide resistance by Plant Science Consulting and Charles Sturt University in NSW.

If resistance problems are detected or emerging, there are profitable and practical IWM tactics that are being successfully used to control wild radish and annual ryegrass in WA's northern wheatbelt region.

These include:

- A double knock with selective herbicides at the recommended crop growth stage.
- Non-glyphosate knockdowns.
- Strategic timing of applications.
- Applying full label rates of herbicides.
- Use of non-herbicide strategies to increase crop competition with weeds.
- Use of better weed detection technologies.
- Employing harvest weed seed control measures.

Additional Information

Australian Herbicide Resistance Initiative (AHRI)

www.ahri.uwa.edu.au

WeedSmart website:

www.weedsmart.org.au

Australian Glyphosate Sustainability Working Group:

www.glyphosateresistance.org.au

and 'Giving a Rats' e-newsletter:

givearats@agronomo.com.au

Ground Cover May/June edition supplement: Herbicide Resistance – Making Herbicides Last:

www.grdc.com.au/GCS104

GRDC Herbicide Resistance Fact Sheet western region:

www.grdc.com.au/GRDC-FS-HerbicideResistance

GRDC In-Crop Herbicide Use Fact Sheet: www.grdc.com.au/GRDC-FS-InCropHerbicideUse

This national simulation tool was developed by the Department of Agriculture and Food WA in partnership with the University of Western Australia, University of Adelaide, the New South Wales Department of Primary Industries and the Department of Agriculture Fisheries and Forestry in Queensland and supported by GRDC.

The user enters site-specific weather data and soil type, the weed species they want to investigate and information about past and future weed management to evaluate the best management options and assess how to get the best crop yields.

More information and free download is available on the DAFWA website: <http://grains.agric.wa.gov.au/weed-seed-wizard> and the GRDC website: www.grdc.com.au

Ryegrass Integrated Management (RIM)

Developed by the Australian Herbicide Resistance Initiative (AHRI), the RIM model was recently revamped and is now even more user-friendly.

It can evaluate the long term profitability of ryegrass control methods.

RIM enables users to assess the effectiveness and budget implications of 10-year cropping and weed management scenarios using up-to-date economic parameters.

It has options for four crops, three pastures and 43 practices that include herbicide use and rates, timing of application, soil preparation, crop type and grazing.

Graphs can be produced and exported to other software programs for analysing ryegrass survivors, gross margins across 10 years, yield loss from competition and ryegrass seedbank levels.

The latest version of RIM has a user guide and video tutorials and is available for free download at: www.ahri.uwa.edu.au/rim

AHRI will be organising workshops that include RIM for farmers, agronomists and consultants later this year.

USEFUL RESOURCES

For testing suspected resistant weed and weed seed samples:

Plant Science Consulting

www.plantscienceconsulting.com

Syngenta RISQ Test

www.syngenta.com.au

Email:

syngenta.advice@syngenta.com

Charles Sturt University

www.csu.edu.au/research/grahamcentre/producers/herbicideresistancetesting.html

MORE INFORMATION

Peter Newman, AHRI

08 9956 8563

peterm@planfarm.com.au

Sally Peltzer, DAFWA

08 9892 8504

sally.peltzer@agric.wa.gov.au

Andrew Storrie, Agronomo

08 9842 3598

andrew@agronomo.com.au

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Decision support tools for weed management

Weed and herbicide resistance management often involve complex interactions, multiple year timeframes, many possible interventions, major environmental influences and high levels of uncertainty.

The use of computer-based models can be a valuable tool to aid decision making.

Weed Seed Wizard

Weed Seed Wizard can investigate the impact of a wide range of management strategies (such as grazing, harvest seed control, increased crop competition, rotation change and various seed set controls such as crop topping and hay making) on the seed and weed numbers of annual ryegrass, wild radish, wild oats, barley grass and brome grass.

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