

DEMONSTRATING RYEGRASS CONTROL STRATEGIES – AN UPDATE

KEY MESSAGES

- **Integrating a range of locally validated weed management strategies is important when tackling annual ryegrass**
- **Rotating crop types and chemistry are vital components of all weed and disease control strategies**
- **It is important to also consider non-chemical weed control strategies, due to the increasing rates of herbicide resistance being seen in local ryegrass populations**
- **Seed testing indicated ryegrass resistance to Group 1 herbicides at the trial site.**

OVERVIEW

A GRDC National Grower Network industry meeting, held in 2022, identified the issue of 'ryegrass blowout' — when ryegrass numbers start to increase at uncontrollable rates — and its subsequent management as a priority issue for north east Victoria.

In recent years, excessively wet conditions have led to poor trafficability, making application of pre-emergent weed control difficult for some products. As a result, growers have observed an increase in ryegrass numbers, due to limited control options available over subsequent wet seasons.

This project is demonstrating locally validated weed management strategies to assist growers improve control of ryegrass populations emerging in different environments, and where herbicide application alone fails.

PROJECT PROGRESS

The jointly managed Riverine Plains and Uncle Tobys trial paddock in Wahgunyah, Victoria is hosting a two-year demonstration trial, which began in 2023.

In consultation with local agronomists, a range of treatments were established in 2023. The GRDC Weedsmart 'Big 6' framework, developed to assist farmers and agronomists with sustainable management practices, was a key reference when designing the trial. Where practicable, 'The Big 6' principles were incorporated into trial design. These are:

- 1) rotate crops and pastures
- 2) increase crop competition
- 3) optimise spray efficacy
- 4) mix and rotate herbicides
- 5) stop weed seed set
- 6) implement harvest weed seed control.

Table 1 describes the timing of various operations for each treatment applied to a grazing wheat crop sown in 2023. All treatments received pre-emergent chemistry of 1.5L/ha Trifluralin and 118g/ha Sakura, incorporated by sowing (IBS), with the exception of Treatment 2 which only received Trifluralin IBS. In addition to the described treatments, the entire site also received an in-crop broadleaf herbicide application, as well as a fungicide application.

During the season, crop establishment and ryegrass emergence counts were taken across each treatment. In addition, ryegrass plant samples (collected in-season) and seed samples (collected at maturity) were sent to Charles

Table 1 2023 (Year 1) treatment details for the ryegrass management trial sown at Wahgunyah

TREATMENT #	TREATMENT DESCRIPTION	DETAILS
1	Control	-
2	High level chemistry	1L/ha Mateno herbicide applied early post-emergent (EPE) Glyphosate applied as a dessicant in early December as per label directions
3	Sowing rate increased by 50%	Sowing rate: 120kg/ha
4	Cut for Hay	Hay Cut: 17 October
5	HWSC (Harvest weed seed control)	*Due to seasonal constraints, we were unable to source a HWSC adapted header, so this area was grazed



Sturt University (CSU) for herbicide resistance testing. Ryegrass plant counts were also taken at intervals throughout the season, to understand the effect of each treatment.

The 2024 (Year 2) demonstration is being overlaid at right angles to the 2023 trial, allowing the analysis of follow-on effects from Year 1 treatments, using a matrix trial set up.

Treatments for Year 2 of the project were selected after discussion with local agronomists and input from local farmers (Table 2). The trial paddock was sown to OptimumGLY® canola (cv PY525G) and the treatments will compare windrowing and direct-heading of canola, along with other chemical and cultural techniques consistent with the 'Big 6 principles'.

Table 2 2024 (Year 2) treatment details for the ryegrass management trial sown at Wahgunyah

TREATMENT #	TREATMENT DESCRIPTION	DETAILS
1	Control	No till (windrow)
2	Control	Speedtill (windrow)
3	Control	Speedtill (direct head)
4	High level chemistry	Double knock with Paraquat Overwatch IBS Spray top post windrow cut (speedtill, windrow)
5	High level chemistry	Double knock with Paraquat Overwatch IBS Spray top pre-harvest (speedtill, direct head)
6	Sowing rate increased by 50%	Sowing rate: 3.3 kg/ha (speedtill, windrow)
7	HWSC/Seasonal Risk Management	Use HWSC, hay cut or manure to manage risk (speedtill)

OBSERVATIONS AND COMMENTS

While results from the ryegrass resistance 'quick test' conducted in 2023 suggested no evidence of herbicide-resistant ryegrass at the trial site, seed tests are known to provide a more accurate measure of herbicide resistance status. In line with this, the ryegrass seed sampled at maturity in early 2024 demonstrated resistance to Group 1 herbicides, which includes 'fops' and 'dims'.

In this trial, the various treatments for controlling ryegrass showed potential in terms of reducing ryegrass numbers at the start of this season compared to the control only (data not presented).

At the end of the 2024 season, the two full years of results will be collated and analysed, to help understand which treatments have the greatest impact on ryegrass control. This will lead to the development of locally relevant control strategies and recommendations for ryegrass management in farm enterprises across the Riverine Plains.

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