

FUNGICIDE

FINGERPRINTING

an independent fungicide evaluation network



June 2021 – Protocol
(version 1 – 1st June 2021)



Fungicide Fingerprinting, developed by FAR Australia, launched in 2021 and is the first coordinated and independent fungicide evaluation network in Australia. This initiative aims to generate an independent evaluation of existing and newly developed fungicides to help growers and advisers make better decisions when managing disease and fungicide use by being:

- independent
- accurate
- consistent in the approach to protocols
- within the label stipulations and AFREN compliant framework

Collaborating Industry Stakeholders

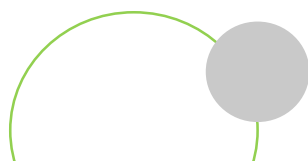
This industry initiative is of benefit to agrichemical manufacturers involved in both new active and generic manufacturing, resellers with agronomists in the field and regional farming groups.

BACKGROUND

FAR Australia has been working with agrichemical manufacturers to bring new products to the Australian Grains industry since its inception in 2012. It is a trusted development partner for many manufacturers bringing new agrichemicals to the marketplace. For the first time the organisation has partnered with industry to independently showcase fungicide performance in a series of fungicide evaluation trials across the country as part of its Industry Innovations (II) 2025 initiative. In this pilot project for 2021 FAR Australia has established a series of trials in order to test different fungicide strategies in wheat. It is planned to expand the trial series in 2022 by increasing the number of crops covered. Each trial will be accurately assessed by individual leaf layer allowing a precise profiling of each fungicide strategy tested (both its protective and curative properties), hence the name Fungicide Fingerprinting. Results of the Fungicide Fingerprinting research initiative will be sent to all collaborating partners, FAR Australia's national mailing list and will be presented on its website as an independent reference to performance. In order to have comparison treatments FAR Australia has put forward four controls and is looking to manufacturers to submit their own disease management strategies to evaluate against.

All results (efficacy, yield response and margins) will be made available endorsing the independence of the findings. The results can be used by those manufacturers contributing strategies to the programme. Where fungicide products are commercially available results will be assessed in terms of margin over input cost. If the product is in the development stage, it will not be assessed in terms of margin until commercialisation.

This independent initiative will give industry a chance to compare product applications under identical conditions looking at efficacy, yield response and profitability as the key parameters assessed. It will enable generic manufacturers to illustrate the value of their offerings as well as provide a platform for new actives to display industry improvement over existing standards. It will also allow resellers the opportunity to test fungicide strategies they were thinking of introducing to their clients as product availability changes.



OVERALL OBJECTIVE

To develop independent results on profitable, productive and sustainable approaches to disease management in wheat (barley planned for 2022) using specific strategies devised by fungicide manufacturers, resellers and FAR Australia for commonly occurring fungal pathogens in the High Rainfall Zone (HRZ) of Australia.

Individual objectives specific to the trial are:

- To assess the efficacy of different fungicide strategies against foliar pathogens prevalent in the HRZ of Australia.
- To assess the most cost-effective fungicide strategies in different HRZ regions of Australia (long season and short season) using less expensive generic chemistry alongside the latest development material.
- To evaluate whether newer generation fungicide chemistry is more effective than DMI based standard controls.
- To determine the impact of introducing Group 7 and QoI Group 11 chemistry SDHI into two spray programmes.
- To allow development material to be entered under a FAR code (where it is pre commercial) which is revealed when the new active is commercialised.

The Fungicide Fingerprinting initiative will be run at FAR Australia's Crop Technology Centres in the HRZ regions of Australia where disease management is more prevalent, thus an important component of cereal crop agronomy.

HRZ LOCATIONS & CULTIVARS (target diseases)

Gnarwarre, Victoria

SQP Revenue (feed wheat)

Septoria tritici blotch
Leaf rust

Millicent, SA

DS Bennet (ASW)

Septoria tritici blotch
Leaf rust
Stripe rust

Frankland, SA

Kinsel (noodle wheat)

Yellow spot
Leaf rust
Stem rust
(pathotype)



TREATMENTS

All fungicides applied at 100L/ha when main stem is at the two development stages specified.

Treatment	GS31 (1 st node)	GS39 (flag leaf fully emerged)
1	Untreated	Untreated
2	Prosaro 300ml/ha	Opus 500ml/ha
3	Prosaro 300ml/ha	Radial 840ml/ha
4	Opus 500ml/ha	Aviator 420ml/ha
5		
6		
7		
8		
9		
10		
11		
12		

Trial Design: Randomised complete block based on four replications.

Time of Sowing: mid – late April (depending on location).

Plot number: 12 treatments x 4 replicates = 48 plots



ASSESSMENT PROFILE – ALL SITES

No.	Timing	Assessment
1	All year	Air temperature, daily rainfall.
	Autumn	Starting soil analysis (whole site).
2	GS31	Tag the emerging leaf on three main stems of the untreated in all four replicates at the timing of the first fungicide applications. Tags applied will subsequently allow leaf infection position to be accurately determined.
	1 st Disease assessment (at time of first fungicide application)	Assess 10 stems per plot for % disease, assessing the top three leaves showing infection.
3	GS39 2 nd Disease assessment (at time of second fungicide application)	Assess 10 stems per plot for % disease severity and incidence, assessing the top three leaves showing disease.
	2 nd Disease assessment at time of second fungicide application	Assess 10 stems per plot for % disease, assessing the top three leaves showing disease. This will allow % severity and incidence to be calculated.
4	GS71 3 rd Disease assessment & Green Leaf Retention	Assess 10 stems per plot for % disease severity and incidence, assessing the top three leaves showing disease. Assess Green leaf retention based on the same top three leaves.
5	GS71 NDVI & 14-day intervals thereafter	Assess all plots.
	Photos of canopy looking down 0.5m above & from front of plot	Photos of canopy looking down 0.5m above & from front of plot.
6	Harvest	Combine harvester grain yield.
		Grain quality (moisture %, protein %, test weight, TSW (g) and screenings %).

COSTS

Manufacturers are invited to submit fungicide strategies based on one or two fungicide sprays applied at either GS31 or GS39 or both timings. Entries are based on supplying a minimum of two (or alternatively four) treatments for one or more of the three trial locations.

The cost would be \$3000 for two entries or \$5000 for four entries + GST for each trial location or \$8500 or 14,000 + GST if the two or four fungicide entries were placed at all three trial sites.

A report would be provided that included all treatments and the FAR Australia controls for all sites where entries had been funded.

Should you wish to invest in entries into FAR Australia's Fungicide Fingerprinting evaluation network, please contact Rachel Hamilton on 0428 843 456 or email rachel.hamilton@faraustralia.com.au



Cultivating sustainable solutions to increase broadacre productivity through research, extension training and adoption.



Over the next five years, FAR Australia is joining forces with industry to provide innovative research solutions which will create a more productive and sustainable future for the Australian grains industry. With Crop Technology Centres (CTCs) operating nationally across the more productive growing regions of Australia, FAR Australia has a strong platform to showcase your innovation(s). Whether you have new crops, cultivars, agrichemicals, fertilisers or Ag technologies, we would like to work with you to;

conduct independent research:

- To draw together key research advances and crop solutions that will enable us to grow more productive crops tomorrow.
- To bring industry together to showcase research advances across CTCs located nationally.
- To deliver key field days specifically for Industry Innovation 2025 partners at the CTCs.
- Research advances based on germplasm, nutrition, agrichemicals, soil amelioration or enabling technologies that will allow more profitable use of these key agronomic inputs.
- Enable II2025 partners to brief clients through utilising the CTC research platforms.
- Confidentiality and sensitivity will be placed around non-commercial products as per industry partner requirements.

conduct industry training:

- The Crop Technology Centres not only offer recognised independent platforms to test new advances, they also provide a framework for training advisers, industry representative and growers themselves.
- Training packages for larger organisations offering access to the CTCs for graduate staff in order to fast track their knowledge by utilising side by side research comparisons and/or training for more specialist staff who require more tailored or general agronomy coaching.
- Innovative group learning to enable advisers and their clients to utilise the CTCs to discuss the different approaches they use on farm, with follow up site visits to see new concepts through to harvest.
- Access to key industry expertise using the CTCs as a focal point and technical backdrop for side-by-side comparisons.

In addition to putting agricultural solutions to the test, the FAR Australia Crop Technology Centres are keen to work with those in the industry who see a role for novel agronomy strategies that may provide solutions in a decade's time, this could be processed organic manures, biological control agents, plant activators or a mix of these products with more traditional approaches.



ABOUT FIELD APPLIED RESEARCH (FAR) AUSTRALIA

Sustainability, productivity and profitability must go hand in hand. Field Applied Research (FAR) Australia is helping to make this happen by conducting research, development and extension to support beneficial changes in Australian agriculture.



Formed in 2012, the primary role of Field Applied Research (FAR) Australia is to apply science innovations to profitable outcomes for Australian grain growers through excellence in applied field research and interpretation of such. FAR Australia staff carry out a wide range of field research projects partnering and collaborating with a number of higher science bodies including universities, state departments and CSIRO. The organisation is also integrally involved in extension and training of growers and advisors working with regional farming groups and the cropping levy body GRDC to provide cutting edge, field proven research outcomes for adoption by growers on farm.

International linkages

Our international linkages with researchers in Europe, North America and South America create excellent opportunities to fast-track new advances in field science, agronomy and husbandry being adopted elsewhere in the world. These linkages have led to new germplasm advances in Australia as well as collaborative research programmes which create tangible benefits for Australian grain growers.

FAR Australia's national and regional research programmes, extensive international collaborating linkages and field research centres combined provide the ideal platform to independently showcase the best innovations in the Australian cropping industries.

National research programmes

Field Applied Research (FAR) Australia both leads, and collaborates in, a number of research projects across Australia that involve working with many industry partners. Research funding comes from the wider Australian grains industry, the Grains Research & Development Corporation (GRDC), state governments and the federal Government. These projects have resulted in FAR Australia having an extensive network of research, industry and farming group contacts across the country. Probably one of FAR Australia's greatest achievements to date was to be awarded the multi-million dollar Hyper Yielding Crops (HYC) project which is funded by Australian grain growers through the levy body GRDC. HYC aims to push the economically attainable boundaries of wheat, barley and canola. The project derives from the FAR Australia lead Hyper Yielding Cereals project in Tasmania, which over four years demonstrated that it is possible to more than double yields in some situations through sowing the right cultivars and effective implementation of appropriately tailored management strategies.



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