WA CROP
TECHNOLOGY
CENTRE (ESPERANCE)

FIELD DAY

INCREASING PRODUCTIVITY & PROFITABILITY IN THE ESPERANCE PORT ZONE

Friday 5th September 2025

FAR Australia WA Esperance Crop Technology Centre 2024

Thanks to the following event sponsors:

SOWING THE SEED FOR A BRIGHTER FUTURE

Thanks to our host farmers: Tony & Jane Meiklejohn

VISITOR INFORMATION

We trust that you will enjoy your day with us at our WA Crop Technology Centre (Esperance Port Zone) Field Day. Your health and safety are paramount, therefore whilst on the property we ask that you both read and follow this information notice.

HEALTH & SAFETY

- All visitors are requested to follow instructions from FAR Australia staff at all times.
- All visitors to the site are requested to stay within the public areas and not to cross into any roped off areas.
- All visitors are requested to report any hazards noted directly to a member of FAR Australia staff.

FARM BIOSECURITY

- Please be considerate of farm biosecurity. Please do not walk into farm crops without permission. Please consider whether footwear and/or clothing have previously been worn in crops suffering from soil borne or foliar diseases.

FIRST AID

- We have a number of First Aiders on site. Should you require any assistance, please ask a member of FAR Australia staff.

LITTER

- Litter bins are located around the site for your use; we ask that you dispose of all litter considerately.

VEHICLES

- Vehicles will not be permitted outside of the designated car parking areas. Please ensure that your vehicle is parked within the designated area(s).

SMOKING

- There is No Smoking permitted inside any farm shed, marquee or gazebo.

Thank you for your cooperation, enjoy your day.

INCREASING PRODUCTIVITY AND PROFITABILITY IN THE ESPERANCE PORT ZONE

FEATURING FAR Australia INDUSTRY INNOVATIONS

On behalf of myself and the FAR Australia team, I am delighted to welcome you to our 2025 WA Crop Technology Centre (Esperance Port Zone) Field Day featuring Industry Innovations.

Industry Innovations (II) is a FAR Australia initiative which continues to engage with industry to provide innovative research solutions which are helping to create a more productive, profitable and sustainable future for the Australian grains industry. With our Crop Technology Centres (CTCs) operating nationally across the growing regions of Australia, we provide the perfect platform to showcase new industry innovations, whether it be new crops, cultivars, agrichemicals, fertilisers or Ag technologies. More information on our Industry Innovations initiatives is available in the booklet.

Today will provide you with a unique ‘seeing is believing’ opportunity to experience the latest innovations in cereal germplasm, agronomy, and agrichemical usage. You will witness first-hand the impact of innovative treatments and techniques on enhancing crop performance and profitability.

Event Highlights:

- Topics for all agroecological regions from the High Rainfall Zone (HRZ) to the Low Rainfall Zone (LRZ)
- An opportunity to engage with two of the country’s foremost canola disease experts talking about blackleg and sclerotinia control in the context of our management strategies to date.
- With wheat and barley what closure of the yield gap do our fungicides offer in southern WA.
- Farming systems in the Esperance Port Zone – what changes do we envisage for the future?
- Benchmarking agronomics and profitability in the Esperance Port Zone – what can we take away from the first year of the GRDC Hyper Profitable Crop (HPC) results generated in 2024.
- Expert Presentations: Hear from industry leaders, who will share insights into the latest research and trends shaping the Australian grains industry.
- Interactive Discussions: Engage in group discussions on crucial topics regarding crop profitability.

To make the programme as diverse as possible, I would like to thank all our speakers who have helped to put today's programme together; in particular our keynote speakers Dr Steve Marcroft and Associate Professor Angela van de Wouw from Marcroft Grains Pathology and University of Melbourne, who are based in WA for the spring this season. I would also like to thank our resident senior scientist from DPIRD Mark Seymour who is always a pleasure to have at our field days.

For the last five years we have been generously supported by our principal sponsor of today's event. AFGRI Equipment from here in Esperance have been steadfast in being our event sponsor and the whole FAR Australia team would like to place on record our grateful thanks for this support.

We would also like to thank Elders Esperance and South Coastal Agencies (Nutrien Ag) for their support in assisting with the costs of our keynote speakers today. Days such as these are not possible without the support of these industry organisations so, please engage with them during our refreshment periods.

Putting together a quality Crop Technology Centre takes a fair amount of planning so a very big thanks to our new host farmers for 2025 Tony and Jane Meiklejohn and the Neridup farm team, Ardi Kalda and Loore Kytt, TJM Farming for their tremendous practical support given to the FAR Australia team.

Finally, I would like to thank the industry for investing in our research programme this season under our Industry Innovations portfolio.

Should you require any assistance today, please don't hesitate to contact a FAR Australia staff member. We hope you find the day informative, and as a result, take away something new which can be implemented in your own farming business.

Nick Poole Managing Director
FAR Australia

MORNING TIMETABLE

WA CROP TECHNOLOGY CENTRE FIELD DAY (ESPERANCE PORT ZONE)
FRIDAY 5th SEPTEMBER 2025

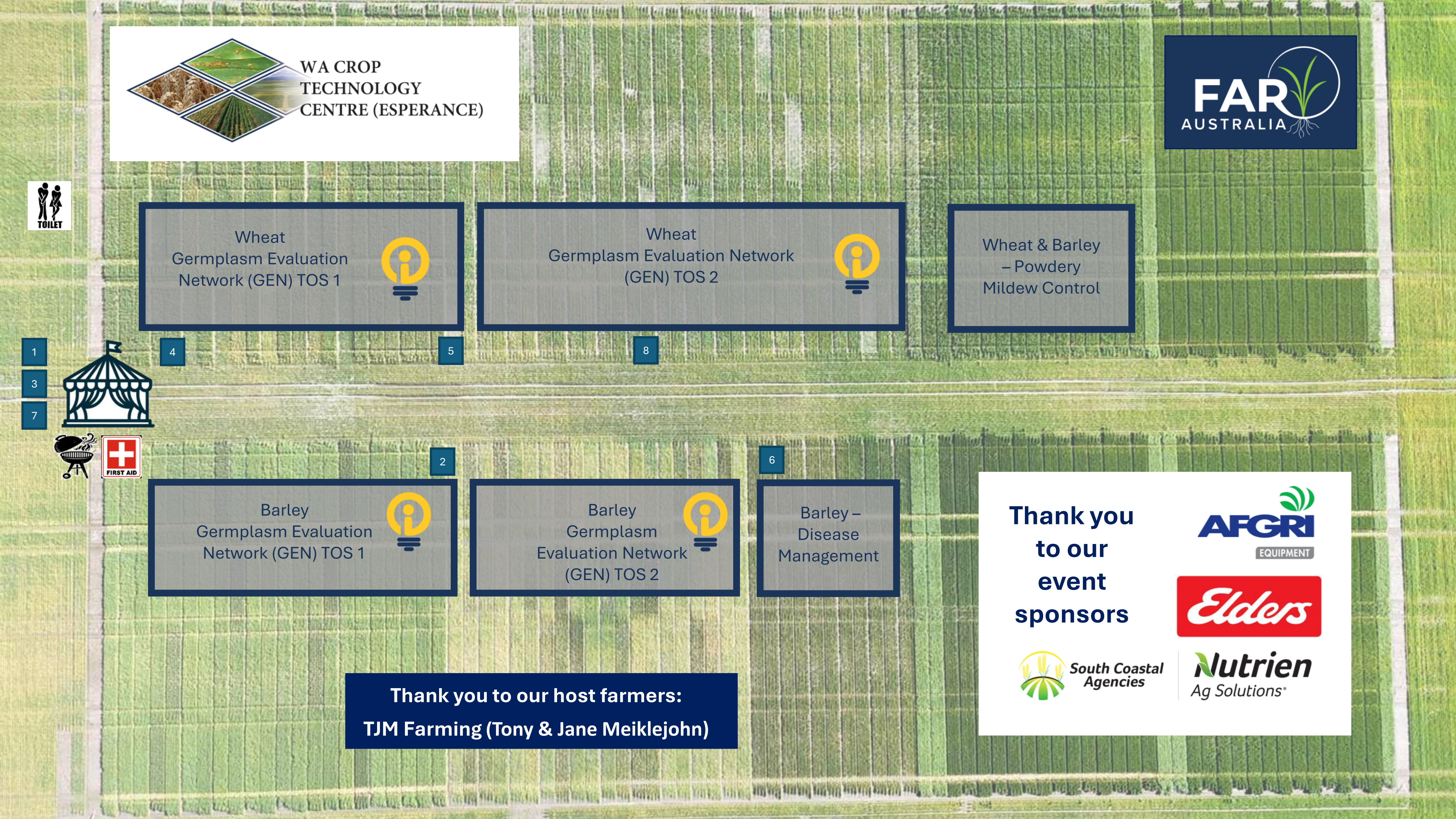
In-field presentations	**Station No.**	**10.15am**	**10.30am**	**11.00am**	**11.30am**	**12.00pm**	**12.30pm**
Welcome and Introductions ***Nick Poole - Managing Director, FAR Australia*** ***Andrew Fowler - Director, FAR Australia Board*** *Outline the program for the day.*		**Gazebos**					**Gazebos**
David Cook, SEPWA and Dr Ben Jones, FAR Australia ***Pushing potential profit? Benchmarks for wet and drier environments*** *The first year results our new GRDC Hyper Profitable Crops project are out. Ben and David look at the analysis of agronomic and profitability benchmarking in the Esperance Port Zone.*	**1**		1	2			Lunch and refreshments kindly sponsored by AFGRI EQUIPMENT
Nick Poole & Deep Das, FAR Australia *Wheat versus barley – how do these two important cereal crops vary in performance, over the last five years in the Esperance Port Zone, when grown in the same rotation position (post canola)?*	**2**			1	2		
Dr Steve Marcroft, Marcroft Grain Pathology *Canola is hugely important for the Esperance Port Zone. Steve looks at the principal diseases of canola, examining our best approaches to control diseases, such as blackleg, stem canker and upper canopy infection, along with Sclerotinia.*	**3**				1	2	
Deep Das, Kate Trezise, Sophie Paul & Nick Poole, FAR Australia *The WA team look at this year's Germplasm Evaluation Network (GEN) where the latest germplasm entered by the breeders is put alongside some port zone controls with and without a fungicide package.*	**4**		2			1	
In-field presentations	**Station No.**	**10.15am**	**10.30am**	**11.00am**	**11.30am**	**12.00pm**	**12.30pm**

For the presentations, we would be obliged if you could remain within your designated group number.
Note we will only split into two groups if high numbers are in attendance.

Thank you for your cooperation.

🟩 1
🟦 2

FAR Australia would like to thank Elders Esperance and South Coastal Agencies; Nutrien Ag Esperance for their sponsorship of todays event and the associated costs for our fabulous guest speakers.



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FAR AUSTRALIA

Wheat
Germplasm Evaluation Network (GEN) TOS 1

Wheat
Germplasm Evaluation Network (GEN) TOS 2

Wheat & Barley – Powdery Mildew Control

Barley
Germplasm Evaluation Network (GEN) TOS 1

Barley
Germplasm Evaluation Network (GEN) TOS 2

Barley – Disease Management

Thank you to our host farmers:
TJM Farming (Tony & Jane Meiklejohn)

Thank you to our event sponsors

AFGRI EQUIPMENT

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Pushing potential profit?

Some benchmarks for wet and drier environments

Ben Jones and Rebecca Murray, FAR Australia

Introduction

In a world of water, where do you turn to check if your crop management is working to the profitable potential? The Hyper Profitable Crops project has some answers. Input use, agronomy, yield and quality were monitored on 95 paddocks across the high rainfall zones of southern Australia in 2024. Common input and grain pricing, together with weather data, were used to set some initial benchmarks. Crop performance relative to benchmarks can be used to indicate where management (or simply the season) might have led to a poor outcome, and what might be changed to improve future results. Twelve paddocks in the Esperance port zone were part of the first season of the project.

Method

Paddocks in either wheat or barley were volunteered by farmer members of discussion groups run by each hub (hosted by SEPWA for Esperance). Input data was recorded between harvest of the previous crop and harvest of the focus crop. The hub facilitator recorded inputs, took soil samples (soon after sowing in May), and visited paddocks regularly to track growth stage. Before harvest, quadrats of mature plants were harvested and processed to estimate total biomass, yield components, and also provide data for quality analysis. Weather data was taken from the nearest SILO grid cell location (https://www.longpaddock.qld.gov.au/silo/point-data/).

Water-limited potential yields were estimated according to 25 kg/ha/mm grain x (growing season rainfall + irrigation + 30 % of fallow rain – 60 mm evaporation). Growing season was estimated for each hub area as the weeks where average rainfall exceeded a third of evaporation (30 year, over 3 week contiguous periods). A water use cap of 480 mm was applied across all groups, but in future will be adapted to better reflect the growing season. Radiation/temperature limited yields were estimated according to relationships with the photothermal quotient (photosynthetically active radiation divided by average temperature in the four weeks before estimated flowering date).

An estimated gross margin was calculated using the whole paddock yield, with quality set by the sample grain and price according to publicly available grain prices in May 2025 (with adjustment for freight rates according to discussion group location). A common input price list was used across the project and adjusted where necessary to reflect changes in each hub area. Where inputs were applied across multiple years (e.g. lime, soil amelioration) the cost per year was estimated *pro rata*. Operation costs were estimated on a similar basis. Since releasing the 2024 season reports (and for this analysis), harvest cost has been updated to be in proportion to yield (assuming throughput effectively limits harvest rate for crop yields > 3 t/ha).

Benchmarks

The analysis breaks profit into several components:

Potential yield	whichever of water- and radiation/temperature-limited yield is lowest.
Percent of potential	how much of potential yield was achieved

Pushing potential profit?

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Price achieved/tonne	depending on quality, port price and estimated freight for each group
Cost	total of inputs, operation cost

Profit and cost are both expressed in terms of potential yield, so that they are comparable across water- and radiation/temperature-limited paddocks.

Benchmarks were calculated for each paddock and averaged across discussion groups, to determine some initial benchmark levels against which all paddocks could be compared.

Results

Many discussion groups achieved an average percent potential yield of around 80% or higher (Figure 1). This seems like a reasonable benchmark for production. Higher percent potential yields were achieved in drier environments, and probably reflect under-estimation of stored water in soils with high plant available water. Some of the SFS Tas paddocks had yield limited by the water use cap, when the radiation/temperature potential yield would more correctly apply. These groups would have lower average percent potential achieved.

Differences in price achieved reflect port and freight differences (Figure 2), but also quality achieved. In some groups, more of the paddocks are sown to cultivars with maximum feed grades.

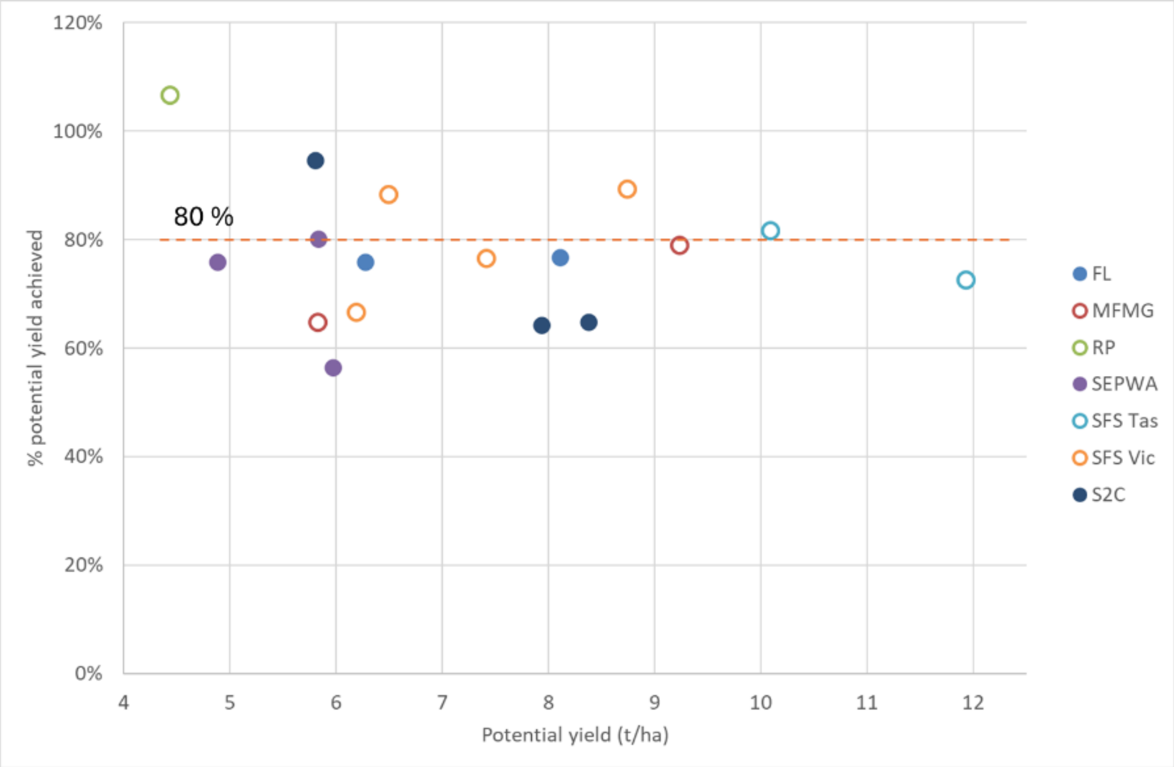

Figure 1. Potential yield benchmark: average percent potential yield for each discussion group vs potential yield. Colours represent different hubs. The dashed line is a proposed potential yield benchmark of 80%.

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**FL = FarmLink (NSW), MFMG = Mackillop Farm Management Group (SA), RP = Riverine Plains (NSW), SEPWA = South East Premium Wheat Association (WA), SFS = Southern Farming Systems (Victoria and Tasmania), S2C = Stirlings to Coast (WA)*

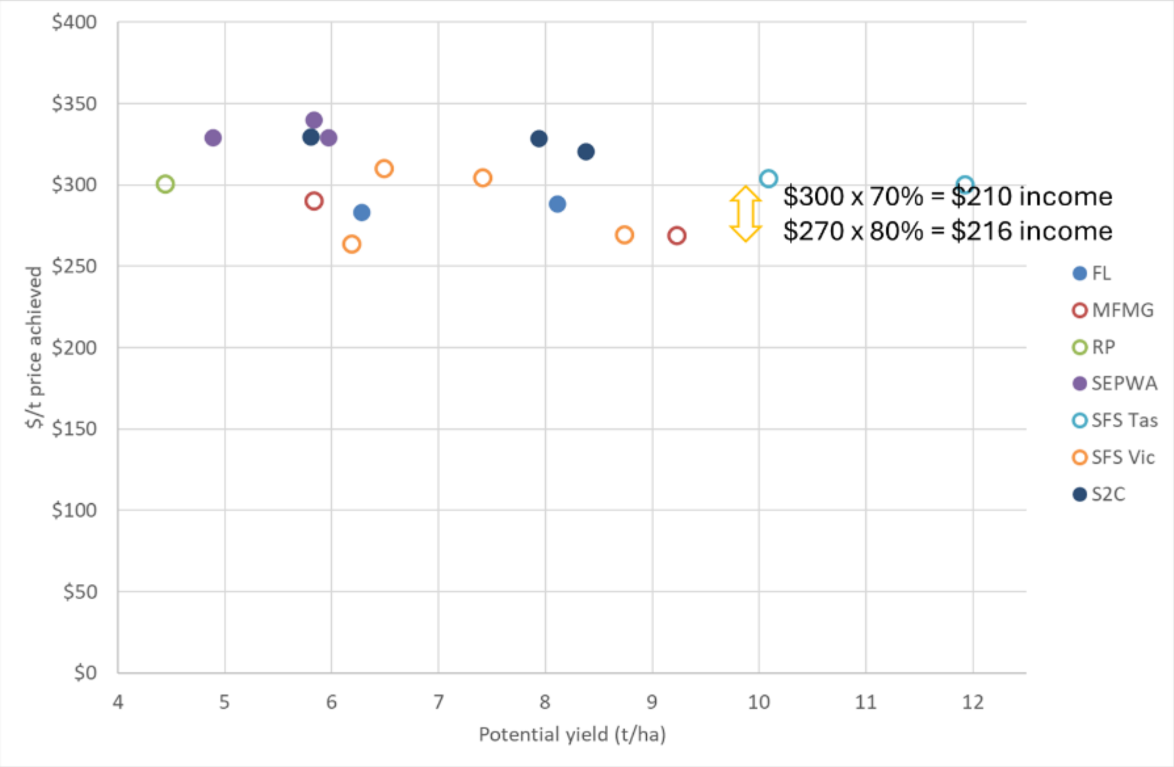

Figure 2. Price achieved benchmark: average grain price achieved in each discussion group vs potential yield. Colours represent different hubs.

Costs were quite consistent across the groups when expressed relative to potential yield, allowing for many of the groups not including fallow costs (Figure 3), and the highest SFS Tas group having a higher potential yield than indicated. Cost per tonne of potential yield was approximately $100/t above 8 t/ha, and an additional $10/t below it. These may be useful benchmarks.

Many of the groups achieved $130 profit per tonne potential yield (Figure 4) across the range of potential yields. This appears to be a useful upper benchmark. Medium and low benchmarks have been suggested at $100 and $60 profit per tonne potential yield.

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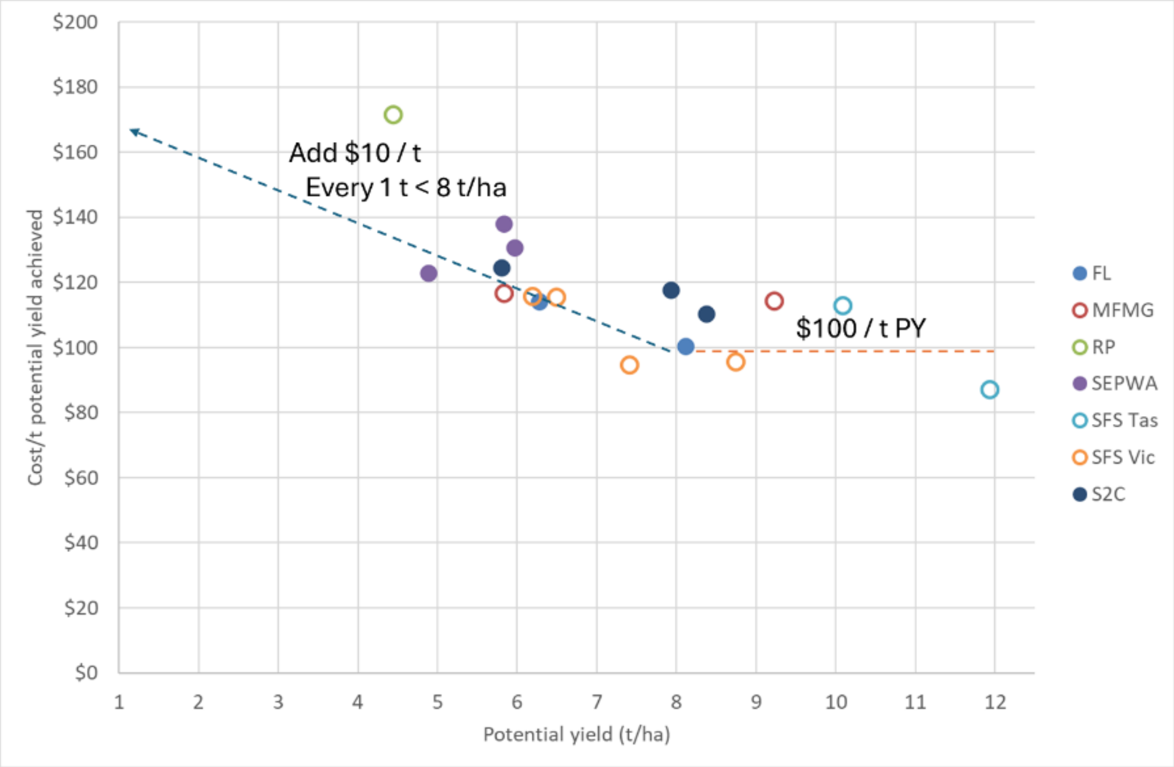

Figure 3. Cost benchmark: average cost per tonne potential yield in each discussion group vs potential yield. Colours represent different hubs. In hubs with open circles, costs were not measured before sowing. The dashed line is a proposed cost benchmark of $100/t potential yield, increasing $10/t for each t/ha below 8 t/ha.

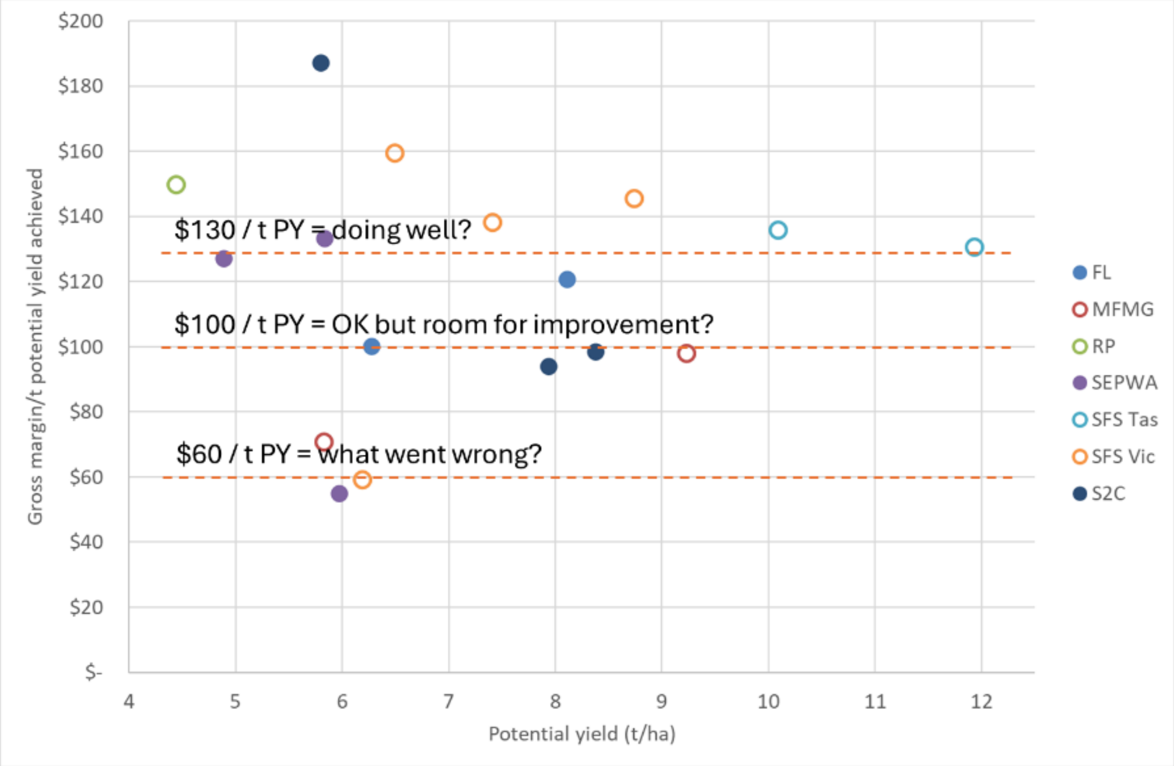

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Figure 4. Profit benchmark: average profit per tonne potential yield in each discussion group vs potential yield. Colours represent different hubs. Dashed lines indicate proposed benchmarks.

Discussion/Conclusion

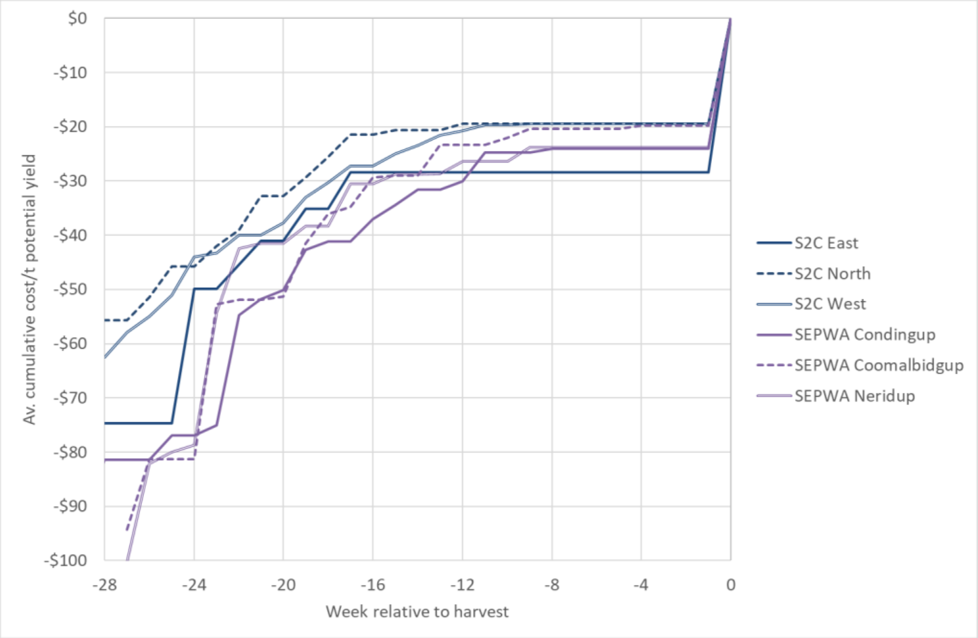
Application

The benchmarks are currently most readily applied by farmers who had a paddock in the project in 2024 and can calculate and compare their own benchmarks from the reports. Anyone who can estimate potential yield should be able to calculate what they should be achieving, and begin to target production, price or cost for further investigation if their profit benchmark appears low.

For example, if potential yield is around the 80% benchmark, the cause of a poor profit result rests either with price achieved, or cost.

The cost benchmark should also have application in-season, as a guideline on how much would be reasonable to spend (or try to save) if the potential yield is likely to be different from planned. For example, at a potential yield of 6 t/ha, a cost benchmark of $120/ha/t potential yield should lead to a total $720/ha spend. If rain leads to a potential yield of 9 t/ha, the cost benchmark of $100/ha/t potential yield suggests a total $900/ha spend, or no more than $180/ha more (including harvesting the additional yield).

The practical challenge in this application is how early any change in potential yield is known, vs. how much has been spent. In 2024 in the SEPWA and Stirlings to Coast paddocks, there was little that could be varied within 12 weeks of harvest (Figure 5). About $20/ha/t potential yield is spent between 20 and 12 weeks before harvest. In other areas (not shown) the spend is spread out over a longer period, and potentially easier to adjust to the season.



Pushing potential profit?

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Figure 5. Cost remaining to be spent vs weeks before harvest, average for Stirlings to Coast (S2C) and South East Premium Wheat Association (SEPWA) discussion group paddocks in 2024.

Future

Much effort this season has gone into establishing the system for transferring data from Agworld and calculating this first round of benchmarks. The benchmarks, and the questions growers and advisers are asking, will in turn help to further refine the reports for the 2025 season paddocks.

There are some obvious refinements; for example, the profit benchmark should be related to potential price achieved. Assuming that costs will only vary slowly, the profit benchmark should be the main thing to change from year to year (with price).

Acknowledgements

The Hyper Profitable Crops project is funded by GRDC (FAR2403-002SAX).

Thank you to all the growers who contributed data, and to the many hub facilitators involved in setting up paddocks, collecting and editing data and reviewing reports. Thank you also to Paul Feely (Federation University CeRDI), the people of the Agworld Helpdesk, and to members of the FAR Team involved in the project: Darcy Warren, Tom Price, Max Bloomfield, Aaron Vague and Nick Poole.

Wheat or barley after canola?

Nick Poole & Deep Das – FAR Australia

Background

This project was built upon findings from the GRDC investment "Optimising High Rainfall Zone Cropping for Profit" (DAW1903-008RMX), which aimed to explore the productivity and profitability of cereal crops (wheat and barley) in an ameliorated soil system. Over three years (2020-2022), winter wheat cultivars produced more dry matter than spring wheats like Scepter, but their harvest indices were lower, meaning less biomass was converted into grain. Slightly slower-developing spring wheat cultivars like RockStar and Denison outyielded both winter wheat cultivars (Illabo and Mowhawk) and the faster-developing Scepter when sown in mid-April. Winter wheat offers an advantage with its more stable flowering period, potentially enabling earlier sowing in response to early breaks. However, in all year's barley outyielded wheat. This NGN investment explored if the conclusions from DAW1903-008RMX would still apply when sowing was moved two to three weeks earlier than mid-April.

Results

Site 1. Gibson **Sown:** **TOS 1- 26 March 2024** **TOS 2- 23 April 2024** **TOS 3- 10 May 2024** **Harvested: Barley- 4 November** **Wheat- 29 November 2024** **Rotation position: 2023 Canola** **Soil type: Loamy Sand (Deep ripped 2022)** **Irrigation: 15mm on March sown plots** **FAR code: FAR WAE W24-01**	**Site 2. Scaddan** **Sown:** **TOS 1: 26-March** **TOS 2: 23-April** **Harvested: Barley:12-Nov** **Main Season Wheat: 13-Nov** **RGT Waugh:18-Dec** **Rotation position: 2023 Field peas** **Soil type: Shallow sand over clay duplex soil (Deep ripped 2020)** **Irrigation: 15mm on March sown plots** **FAR code: FAR WAE W24-02**

Key Points

- *Both trials experienced extremely dry conditions until late May, adversely affecting crop establishment and yield potential.*
- *Late April sowings (23 April) generally yielded higher than irrigated late March sowings.*
- *At Gibson, Mowhawk winter wheat yielded best among wheat types at late March, with longer season spring wheats (RockStar and Denison) performing comparably while outperforming Illabo. Similarly at Scaddan, winter wheat Mowhawk and longer season spring wheats (RockStar and Denison) showed similar yields when sown in late March.*
- *Both trials showed spring barley varieties (notably Neo CL) significantly outyielding wheat. In Gibson Neo CL produced up to 2 t/ha more than wheat and at Scaddan Neo CL outyielded the best wheat (Scepter) by 0.76 t/ha.*
- *Early sowings led to poor main stem growth, but good August rainfall triggered compensatory tillering—improving head numbers, especially in spring barley.*
- *Spring germplasm (both wheat and barley) were poorly adapted to late March sowing, flowering in the middle of winter (June/July), compared to winter wheats, which flowered much later in mid-late August.*
- *Winter wheat and later sowing dates allowed for flowering within optimum windows.*
- *Gibson produced mainly feed-grade crops with lower test weights generally the limiting factor. In contrast, Scaddan results showed better test weights and bin grades, narrowing profitability differences.*

Wheat or barley after canola?

Nick Poole & Deep Das – FAR Australia

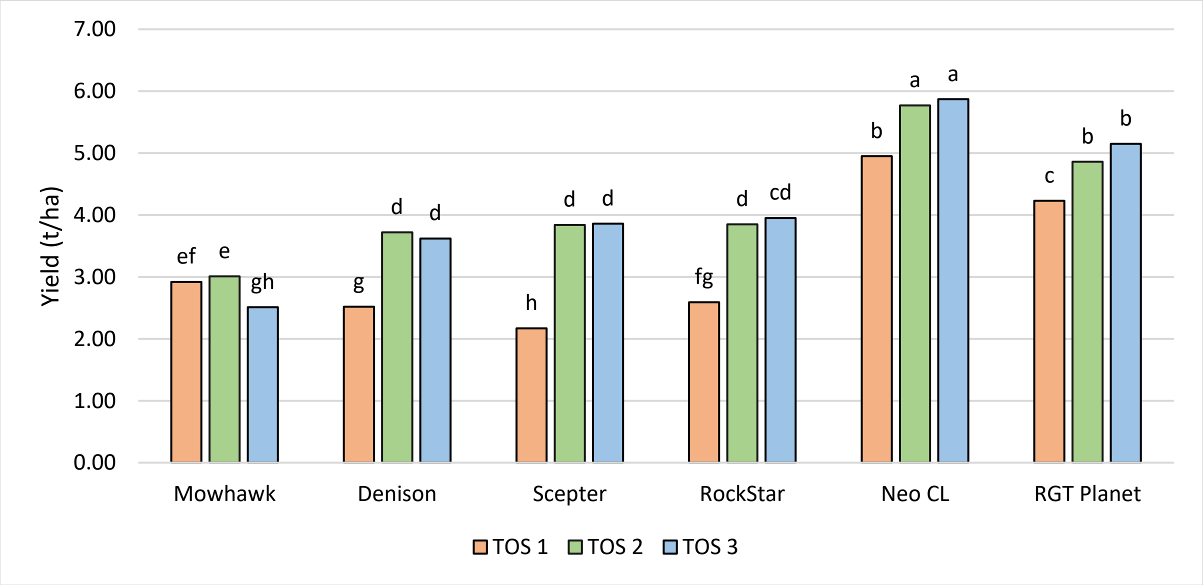


Figure 1. Influence of time of sowing (TOS1, TOS2 and TOS3) and variety on yield (t/ha) at the Gibson trial site.

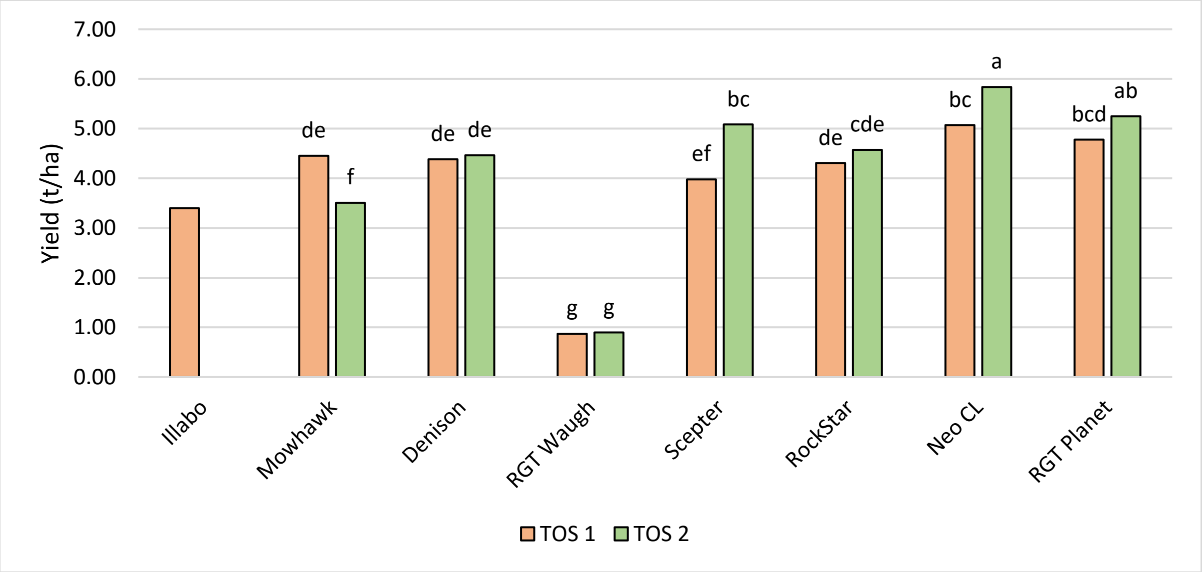


Figure 2. Influence of time of sowing (TOS1 and TOS2) and variety on yield (t/ha) at the Scaddan trial site.

Conclusion

In a one-year study under atypical conditions—with the autumn break delayed until mid-late May—spring barley cv Neo CL consistently outyielded both winter and spring wheat. This finding has significant implications for farming rotations in southern WA. If similar results are obtained in seasons with earlier sowing (late March), the current emphasis on wheat as the preferred cereal after the break crop may need re-evaluation. Success in this sowing window depends on compensatory growth from later-developing tillers, as seen in 2024 when good August rainfall supported yield. If such compensatory growth is routine, early sowing of spring germplasm—especially disease-resistant barley—could be advantageous. However, if the growth response is highly variable due to variety differences or drier conditions, breeding efforts should shift toward improving winter types, including barley which has historically received less focus than winter wheat.

REFERENCES

GRDC final report for *Optimising High Rainfall Zone Cropping for Profit in the Western and Southern Regions 2020-22 (DAW1903-008RMX).*

GRDC Final Report NGN - *Winter wheat investigation on the Southcoast of WA 2024* (*FAR2403-001SAX).*

ACKNOWLEDGEMENTS

FAR Australia and its staff gratefully acknowledges the funding support of the Grains Research Development Corporation in funding this one-year research and extension project. In addition, FAR Australia would like to thank the four host farmers for their unwavering support to a project carried out in an extremely difficult season when irrigation was needed for the first sowing date at all four research sites. We would like to thank the following host farmers.

Gibson – Jordan Whiting and Cam Wholing
Scaddan – Gavin, Elaine & Brad Egan
Frankland River – Kellie Shields, Terry Scott and the Gunwarrie team
South Stirling – Scott, Alaina & Henry Smith

Fungicide strategies for crown canker and UCI of blackleg

Steve Marcroft and Angela Van de Wouw – Marcroft Consulting & University of Melbourne

When considering disease control in the higher rainfall zones in spring 2025 in WA you need to be aware of blackleg, sclerotinia and alternaria. It is almost certain that all of these diseases will be present in 2025. At this time of the year the only control option is fungicides but remember that fungicides always control disease, but disease does not always cause yield loss. Given the fungicide resistance issues that are now occurring in WA (DMI resistance) and in SA (DMI and SDHI resistance) it is imperative to not use fungicides when the risk of yield loss is low – we want to keep the fungicides for when we really need them.

Is my crop at high risk?

Blackleg:

Blackleg crown canker may cause yield losses; you can determine if it did cause yield loss by cutting plants at the crown immediately after swathing or once seed colour change begins to occur. If plants have more than 30% crown discolouration, then yield loss is likely. However, in the spring there is nothing that you can do to reduce crown canker. Consider management options for your 2026 crop - see the 2025 blackleg management guide and BlacklegCM App.

Blackleg Upper Canopy Infection (UCI) is the same disease and same process as blackleg crown canker but instead of the fungus infecting leaves and growing into the crown, causing a crown canker, UCI blackleg infects the flowers and grows into the branches and upper stem causing blackened pith in the upper parts of the plant. UCI blackleg occurs when the plants commence flowering in early to late winter, this is due to two reasons. Firstly, blackleg being a fungus requires wet conditions for the spores to be released from canola stubble but also prolonged plant wetness for the spores to germinate on the plant, grow and cause an infection. Hence, cool wet conditions associated with late winter are more conducive to disease rather than warmer drying conditions of spring. Secondly, UCI blackleg also requires enough time before harvest to infect the plant, grow into the vascular tissue and cause significant necrosis. Infections that occur closer to harvest do not have enough time to cause yield loss.

UCI in 2025 is definitely a potential issue if your crops commenced flowering in July and most likely an issue if they commenced flowering in the first half of August. Later flowering can still cause UCI, but these crops are a low risk of yield loss.

If my crops flowered before August 15, should I apply a fungicide?

1. Disease pressure

   In addition to date to 1st flower, disease pressure is also critical. Distance to last year's canola stubble (less than 500m is greater risk), rotation length i.e., is the crop sown into 2-year-old stubble and a wet spring, all increase the risk of yield loss. Disease pressure can be determined by looking for leaf lesions on the younger leaves, lesions take approximately 14-21 days to develop so lots of new lesions at 1st flower will indicate that the conditions of the previous month have been conducive for disease. If these conditions continue during the early bloom period than it is likely that blackleg UCI could be an issue.

2. Cultivar resistance

   All cultivars are classified for UCI blackleg ratings. Our current GRDC project is measuring yield losses on WA farms (we will have 75 paddocks monitored in WA over current 5-year project). Our current best educated guess is;

- cultivars rated R-UCI will not get disease (unless a resistance breakdown has occurred on your farm).
- MS-UCI rated cultivars can get up to 30% yield loss in a worst-case scenario
- MRMS-UCI rated 20% worst case yield loss and MR 10% worst case yield loss.

Scenario 1

Crop germinated early, commenced flowering in late July, sown adjacent to 2024 canola stubble and into 2023 canola stubble, has lots of leaf lesions and the cultivar is a MR UCI rating.

= apply a 10-30% bloom fungicide application, could easily get a 10% yield return. In this scenario if your cultivar was UCI rating R or has no leaf lesions then there is no risk of yield loss.

Scenario 2

Crop germinated early, commenced flowering in late July, sown 500m from 2024 canola stubble in a 4 year rotation, has a few leaf lesions and the cultivar is a MR UCI rating.

= In this situation yield loss is a lot less likely. If it has been continuously wet during the commencement to the 1st flower growth stage, then yield loss is potentially around 5% but if it was dry during early flowering then a yield return from fungicide application is unlikely. In this scenario if your cultivar was UCI rating MRMS or MS then a yield return from a fungicide application is higher.

Scenario 3

Crop germinated on time, commenced flowering on 7th August, sown adjacent to 2024 canola stubble into 2023 canola stubble, has lots of leaf lesions and the cultivar is a MR UCI rating.

= In this scenario yield loss potential is most likely less than 10% but will be driven by rainfall during flowering. If flowering commenced after 15th August then return from fungicide application is unlikely.

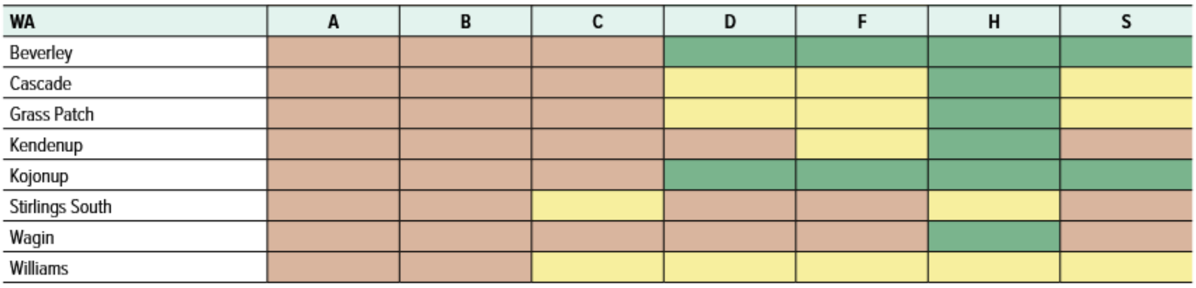
What is the cultivar blackleg rating on my farm?

Blackleg populations overcome genetic cultivar resistance and blackleg populations are different in different regions and on individual farms. Simply put, blackleg populations will evolve in response to the resistance of the cultivar you have been growing om your farm. If you sow a new cultivar its blackleg rating will likely be as advertised in the blackleg management guide. If you have sown the same cultivar for more than 3 years, then the rating of your cultivar may be reduced i.e., if it was a MR when 1st grown it may now behave as a MRMS (3 years later) on your farm. This blackleg evolution however is highly driven by disease pressure; regions that grow 2 crops of canola over 3 years and with high rainfall will result in blackleg populations evolving quickly. Moderate rainfall regions with less intensive canola tend to maintain their genetic resistance ratings.

The best way to determine loss of resistance is to monitor the amount of crown canker and UCI at the end of year. You can check the current blackleg management guide for the latest WA regional resistance group knowledge, if the resistance group is coloured green, it should be effective in your region. However, you can check the status on your farm by looking for leaf lesions. If the major gene resistance is effective (has not been overcome) there will be few if any blackleg leaf lesions (plants are immune).

If you do not have effective major gene resistance in your cultivar (most cultivars), simply use the blackleg rating. To confirm that your cultivar has not eroded in resistance it is highly advised to cut the plant crown (see the blackleg management guide for details). If blackleg levels are low then continue current practices, if blackleg is increasing over time it is suggested to change cultivars.

The status of canola resistance groups in WA (2024 data). Cultivars with effective major gene resistance groups are immune to blackleg.



WA	A	B	C	D	F	H	S
Beverley	🟥	🟥	🟥	🟩	🟩	🟩	🟩
Cascade	🟥	🟥	🟥	🟨	🟨	🟩	🟨
Grass Patch	🟥	🟥	🟥	🟨	🟨	🟩	🟨
Kendenup	🟥	🟥	🟥	🟥	🟨	🟩	🟥
Kojonup	🟥	🟥	🟥	🟩	🟩	🟩	🟩
Stirlings South	🟥	🟥	🟨	🟥	🟥	🟨	🟥
Wagin	🟥	🟥	🟥	🟥	🟥	🟩	🟥
Williams	🟥	🟥	🟨	🟨	🟨	🟨	🟨

🟩 Green = effective 🟨 Yellow = partially effective 🟥 Red = ineffective

* In 2024 low winter rainfall resulted in some sites having low blackleg severity. In these sites 2023 seasonal data was utilised.

Upper Canopy Infection levels can also be determined at plant maturity (commencement of seed colour change) by observing darkened branches and darkened pith (see the blackleg management guide for photos of crown canker and UCI).

The GRDC/DPIRD Apps BlacklegCM and UCI BlacklegCM are very useful aids to determine if fungicide application is like to provide an economic return. It is not preferable to have completely clean crops, low level of disease will not cause yield loss and will reduce the likelihood of fungicide resistance occurring – the aim it is increase yield not to grow the cleanest crop.

Sclerotinia

Sclerotinia is a complex disease. That is, it is almost impossible to predict how much yield loss will occur. Sclerotinia across a region will be more severe in years with wet springs, tight canola rotations, rotations with double broadleaf crops and early flowering. Many crops in southern WA will fit this description in 2025. However, individual crops within the same region and seemingly identical conditions will get very different levels of disease severity. Within the same region some crops should be sprayed with a fungicide, and some should not - but it may be impossible to determine at the time of fungicide application.

Consequently, the best determination is for the grower to know the history of individual paddocks. If yearly scouting identifies paddocks that have a past history of sclerotinia and the same paddock has the high risk indicators as described above, a fungicide should be applied. It is more likely that you will have paddocks that have never had sclerotinia issues. The ScerotiniaM App is an excellent spray decision tool.

Fungicide strategies for crown canker and UCI of blackleg

Steve Marcroft and Angela Van de Wouw – Marcroft Consulting & University of Melbourne

Alternaria

Alternaria is a superficial disease of canola, simply causing lesions and can occur on all plant parts. When alternaria causes lesions on pods these lesions can cause the pods to prematurely shatter. The shattering will cause yield losses, we have measured up to 20% yield loss in the worst-case scenarios.

Alternaria occurs as a result of sustained rainfall during the podding growth stage. Alternaria lesions are incredibly diverse from distinct round lesions to entire pods turning black, to many pinpoint lesions and all combinations.   Unfortunately, there are no management practices to control alternaria.

Fungicide resistance considerations

With the continual use of fungicides comes the increased risk of resistance to fungicides. In recent years there has been an increasing reliance on fungicides to control blackleg disease, with some growers using fungicides as an insurance policy rather than when needed.

We have been screening for fungicide resistance towards the commercial fungicides each year since 2018. Resistance to Group 3 fungicides was first detected in 2015 and has been increasing since, with high levels of resistance to Jockey, Prosaro and Proviso found in every state in 2023 and 2024. The resistance to the DMI (Group 3) fungicides is an incomplete resistance whereby the isolates have an increased tolerance to the fungicide. This means that the fungicides do still have some efficacy towards these resistant isolates, but not the same level of control as the susceptible isolates. Despite this high level of resistance, we have yet to hear of any Group 3 fungicide field failure. This may be because the Group 3 fungicides are still providing some level of control or that high use of the Group 7 fungicides is hiding the loss of efficacy.

For the first time, resistance to Group 7 fungicides has been detected in blackleg disease. In 2024, several populations collected from the Eyre Peninsular showed high levels of disease on Saltro- and iLeVo-treated plants, suggesting the presence of resistance. Isolates were collected from these stubbles and the presence of highly resistant isolates was confirmed. *In vitro* tests showed the isolates have Resistance Factors (RFs) of 42–270 towards pydiflumetofen and 18–109 towards fluopyram. When inoculated onto seedlings, these isolates caused the same level of disease on Saltro and iLeVo treatments as the untreated, meaning the fungicides were rendered completely ineffective. All the populations where Group 7 resistance has been confirmed are located on the Eyre Peninsula (EP) of South Australia. Out of the 41 populations from the EP, two had high resistance, three moderate, nine low and the remaining 27 had no resistance. Resistance was not detected in any other regions. Fifty populations from the EP were also screened in 2022 and no Group 7 resistance was detected in that year, indicating that this resistance has evolved very recently. Current experiments are underway to determine whether these resistant isolates are leading to field failure on farm.

In 2025, 260 populations are being screened representing all the major canola growing regions, including 50 populations from the Esperance, WA region. Preliminary results suggest that no resistance is present in any other region except the Eyre Peninsular. Preliminary analysis of on-farm fungicide practices suggests that early foliar applications (2-8 leaf) are a driving factor in the evolution of fungicide resistance.

Fungicide strategies for crown canker and UCI of blackleg

Steve Marcroft and Angela Van de Wouw – Marcroft Consulting & University of Melbourne

Recommendations for the management of fungicide resistance

- Do not use fungicides as an insurance!
- In locations where resistance has been detected, avoid SDHI chemistries where possible.
- Avoid 2-8 leaf early foliar applications where possible.
- Plants can tolerate up to 30% infection before yield loss. Remember that fungicides always control disease but don't always provide yield returns.
- Where possible, use other management strategies to minimise disease pressure, such as selecting cultivars with high blackleg rating or isolation of 500m from last year's stubble. Refer to blackleg management guide/BlacklegCM app for further information.
- Select adequate genetic resistance for your regions to reduce reliance on fungicides for controlling blackleg disease.
- If fungicides are required, minimise the number of applications. For example, if sowing early, avoid using a 4–6 leaf foliar spray for crown canker. If sowing late, may require 4–8 leaf foliar spray for crown canker but could avoid 30% bloom for upper canopy infection.
- If putting on multiple applications in a season, rotate chemical groups as well as specific actives, where possible.
- If applying fungicides for Sclerotinia, be aware that these sprays will also put selection pressure on the blackleg pathogen, even if you aren't targeting to control blackleg.
- Monitor crops to ensure fungicides are working efficiently. Potentially leave unsprayed strips for comparison. Report any potential field failures to Alec McCallum or Dr Angela Van de Wouw (apvdw2@unimelb.edu.au).
- see also: CropLife resistance management strategies https://www.croplife.org.au/resources/programs/resistance-management/canola-blackleg/

Closing the yield gap - reflection on FAR Australia research results from the Esperance Port Zone.

Nick Poole – FAR Australia

Background

FAR Australia have worked in the Esperance port zone through GRDC investments on and off for the last 20 years (2005 – 2012 principally canopy and disease management) and then under the HRZ project "Optimising High Rainfall Zone Cropping for Profit" (DAW1903-008RMX) which ran from 2019 – 2023 with three trial years. The following results are taken from observations in these trials and FAR's own Germplasm Evaluation Network (GEN) trials looking at the implications for profitability.

Key Points

- *The current absence of stripe rust Puccinia striiformis and Septoria tritici blotch (STB) Zymoseptoria tritici in WA milling wheat crops results in significantly lower returns from fungicide application in the Esperance Port Zone compared to the eastern states.*
- *The maximum yield response in Scepter to a two-spray fungicide programme incorporating SDHI fungicide over three years has been 0.11t/ha (2021 – 0.17t/ha, 2022 – 0.17t/ha and 2024 no response).*
- *In seasons with higher yield potential increased inputs, particularly nutrition, has been the key to cost effective yield increases in wheat.*
- *From 2020 – 2022 an additional 45-50kg N/ha on top of a standard N dose provided profitable increases in productivity based on yield increases of 0.98, 0.84 and 0.77t/ha and associated protein lifts (mean of seven cultivars).*
- *In contrast to wheat, fungicide application in barley is a key ingredient of agronomy, particularly in the MRZ and HRZ regions.*
- *The maximum yield response in RGT Planet to a two-spray fungicide programme incorporating SDHI fungicide over three years has been 1.48t/ha (2021 – 2.05t/ha, 2022 – 1.76t/ha and 2024 – 0.63t/ha).*
- *Despite initial modelling to the contrary, winter wheat germplasm has not been proven to be higher yielding than the spring wheat germplasm sown in mid-April in a coastal low frost risk environment.*
- *The "sweet spot" for flowering in wheat in the Esperance region has been modelled as mid-September.*
- *Over the three years (2020 – 2022), Scepter (spring wheat) and Illabo (winter wheat) gave similar yields despite flowering 4-6 weeks apart, with the winter wheat flowering nearer the more ideal mid-September window for the Esperance Port Zone.*
- *However, winter wheat cultivars do extend the ability to sow early (early – mid April) on large acreages, and when combined with an early break, can offer grazing opportunities as well as grain yield.*

Closing the yield gap - reflection on FAR Australia research results from the Esperance Port Zone.

Nick Poole – FAR Australia

Results

Foliar fungicide application in **wheat** in the eastern states is a major driver of closing the yield gap, even in drier years such as 2023 and 2024. However, in FAR Australia research results in the WA HRZ it has been difficult to demonstrate the same effect on yield and profit.

The following 2024 graphs illustrate this difference with reference to FAR Australia's Germplasm Evaluation Network (GEN) where cereal varieties are tested with and without a comprehensive fungicide programme.

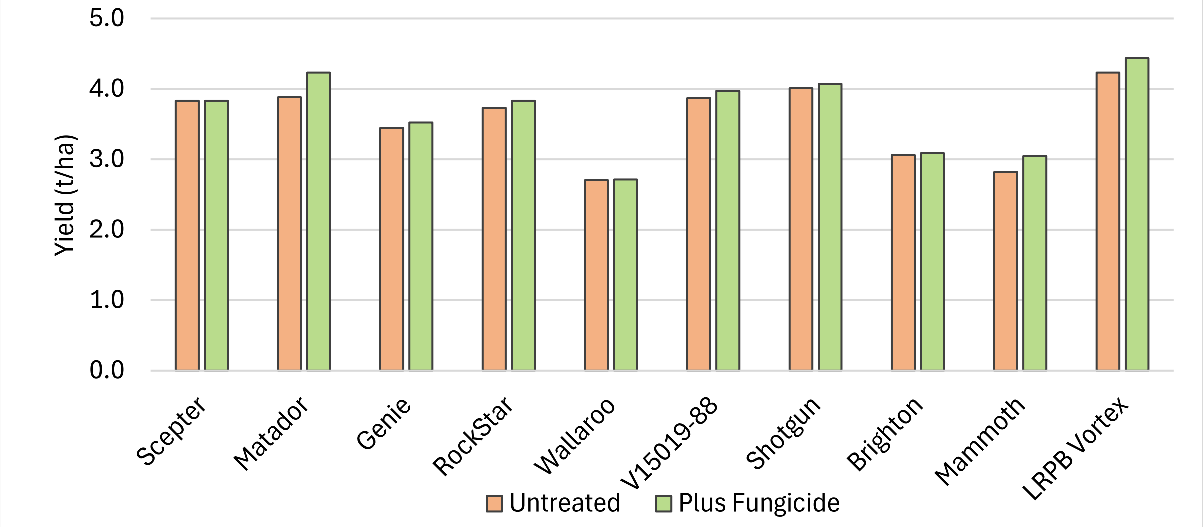


Figure 1. Influence of variety and fungicide application (based on two foliar sprays) on grain yield (t/ha) at **Gibson, Esperance CTC** – sown 10 May **2024** (t/ha). **GSR (Apr-Oct) 279mm.**

Key point: *The only significant yield results were amongst varieties. There was no significant response to fungicide application. In Scepter the yields of treated and untreated were identical.*

In contrast in the same season with less rainfall and roughly similar yields the following results were obtained in southern Victoria at Gnarwarre.

Closing the yield gap - reflection on FAR Australia research results from the Esperance Port Zone.

Nick Poole – FAR Australia

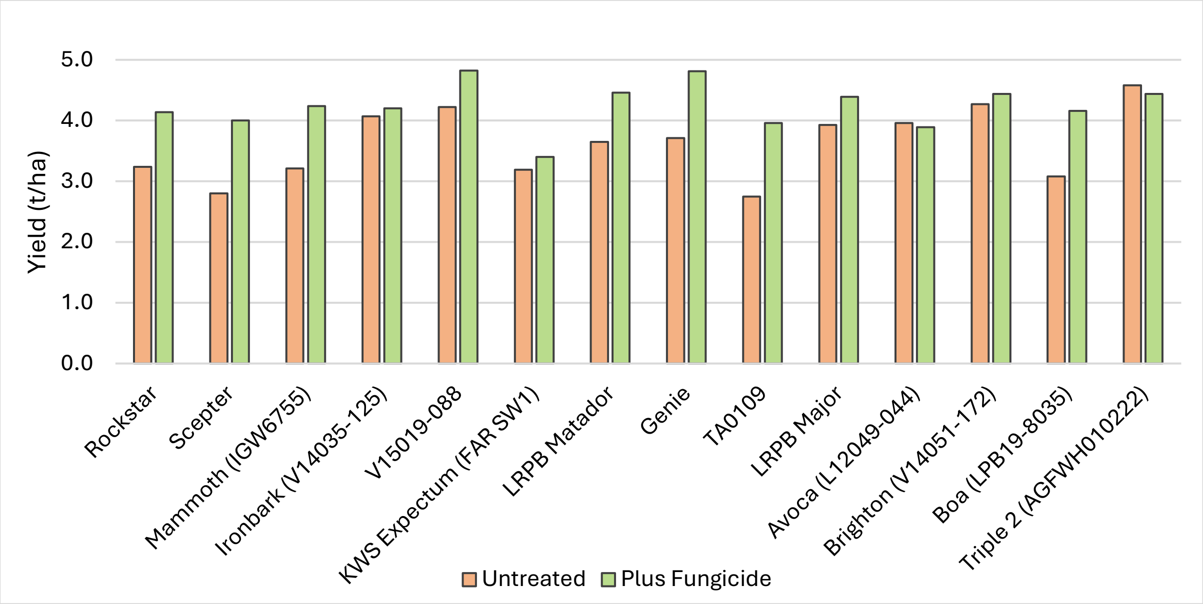


Figure 2. Influence of variety and fungicide application (based on three foliar sprays) on grain yield (t/ha) at **Gnarwarre, Victoria CTC** – sown 20 May **2024**. **GSR (Apr-Nov) 255mm.**

Key point: *The fungicide response of varieties averaged between minus 0.07t/ha – 1.2t/ha. Genie gave over a tonne response to fungicide compared to 0.08t/ha in Esperance, 0.28t/ha in Scaddan and minus 0.31t/ha in Frankland River. In Scepter the yields of fungicide treated crops were 1.2t/ha greater than untreated.*

So why the difference and was it just 2024?

The difference is simply the absence of two diseases in the west that are regularly robbing yield in the eastern states, stripe rust *Puccinia striiformis* and Septoria tritici blotch (STB) *Zymoseptoria tritici*. Much of the milling wheat germplasm (e.g. Scepter) grown in the eastern states is susceptible to these two diseases. This difference between east and west is not a one off, it's been recorded in trials at FAR Australia in previous years. The following trial looked at the yield response to fungicide recorded in **cv Catapult** in the Esperance port zone in the 2021 season under different levels of soil amelioration.

Table 1. Disease management treatments in wheat (mL/ha).

	GS31 Fungicide	**GS39 Fungicide**	**GS59 Head wash**
Untreated			
Standard Disease Management	Prosaro – 300 mL	Tilt – 500 mL	---
High Input – GS39 onwards	Aviator Xpro – 416 mL	Tilt – 500 mL	---
High Input – GS31	Aviator Xpro – 416 mL	Radial – 840 mL	Prosaro – 300 mL

Deep ripping gave a 0.76t/ha yield improvement on non-ameliorated ground, with spade seeding increasing yield by a further 0.7t/ha over tine DBS when it was superimposed on freshly deep ripped soil.

Closing the yield gap - reflection on FAR Australia research results from the Esperance Port Zone.

Nick Poole – FAR Australia

Table 2. Influence of soil amelioration/establishment and disease management strategy on grain yield (t/ha). **– Esperance, WA CTC 2021**

	Fungicide Strategy				
	Untreated	Standard 2F	High input 2F	High input 3F	**Mean**
Establishment	t/ha	t/ha	t/ha	t/ha	
2019 Ripped, Tine DBS	3.62 -	3.50 -	3.66 -	3.64 -	**3.60 c**
2019 + 2021 Rip, Tine DBS	4.49 -	3.95 -	4.58 -	4.42 -	**4.36 b**
2019 + 2021 Rip, Spade Seeder	4.78 -	4.94 -	5.27 -	5.25 -	**5.06 a**
Mean	**4.29 bc**	**4.13 c**	**4.50 a**	**4.43 ab**	

In other trials on the Esperance Centre in 2021 and 2022 Scepter gave an identical maximum response to fungicide in a multiple treatment two spray trial of 0.17t/ha which was not statistically different from the untreated control. Note there was no CTC research centre in 2023.

Key point:

The maximum fungicide response to a two-spray programme (incorporating SDHI chemistry) in Scepter in the Gibson HRZ region has varied between 0 in 2024 to 0.17t/ha in 2021 and 2022 (an average yield gain of 0.11t/ha). If we assumed the non-significant yield gains over these three years were ***real*** *then with wheat at $380/t and the two-spray programme cost $25/ha with $15/ha for application you would just break even taking 0.11t/ha as the yield gain.*

Barley

In contrast to wheat, fungicide application in barley is a key ingredient of agronomy, particularly in the MRZ and HRZ regions. The following graph shows the response to two spray fungicide strategy at the Esperance CTC in 2020 – 2024.

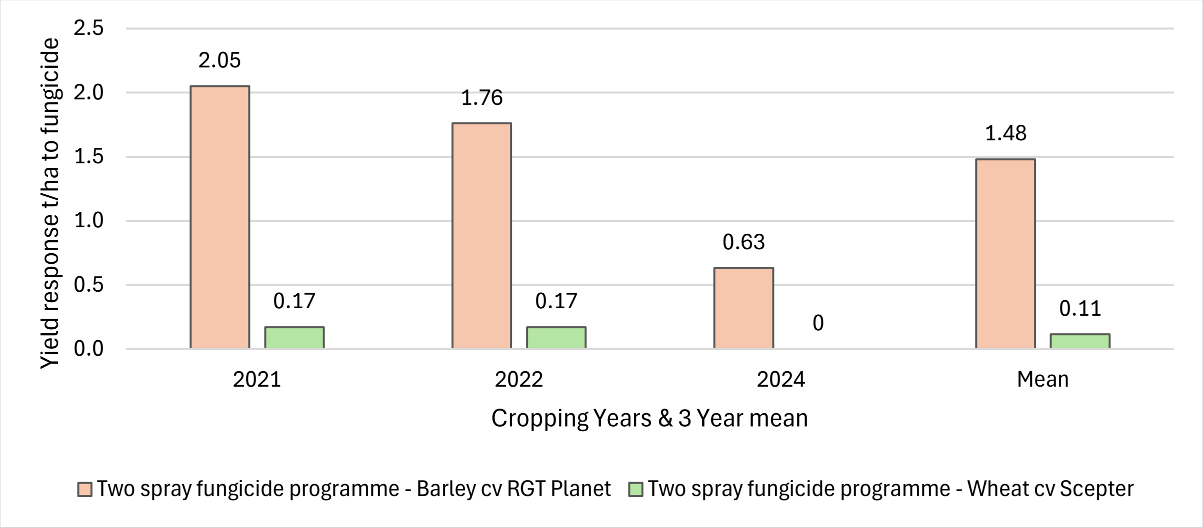


Figure 3. Response to fungicide application in wheat and barley (t/ha) at **Esperance, WA CTC** in 2021, 2022 and 2024. *Note: There was no FAR Australia CTC in the HRZ in 2023 in port zone.*

Key point: *Spending fungicide input money on barley gives significantly better returns than wheat.*

Wheat phenology and nutrition

Despite initial modelling to the contrary, winter wheat germplasm has not yet been proven to be higher yielding than the spring wheat germplasm sown in mid-April in a coastal low frost risk environment. Over three years (2020 – 2022), Scepter (spring wheat) and Illabo and Mowhawk (winter wheats) gave similar yields despite flowering 4-6 weeks apart, with the winter wheat flowering nearer the more ideal mid-September window for the Esperance Port Zone (Figure 4). In more recent seasons the late breaks have given less opportunities for winter wheat as noted with Brighton and Wallaroo in 2024 (Figure 1). In higher yielding seasons such as 2021 and 2022 it was the longer season spring wheat such as Rockstar, Denison and Beaufort that have performed strongly on mid-April breaks (sown mid-April) combined with higher nitrogen input. An example of this was observed in 2022 at the Esperance Crop Technology Centre (Figure 5). It should be noted that the winter wheat Mowhawk has offered small yield advantages over Illabo in the Esperance CTC trials for those growers wanting to safely sow early in more frost prone environments.

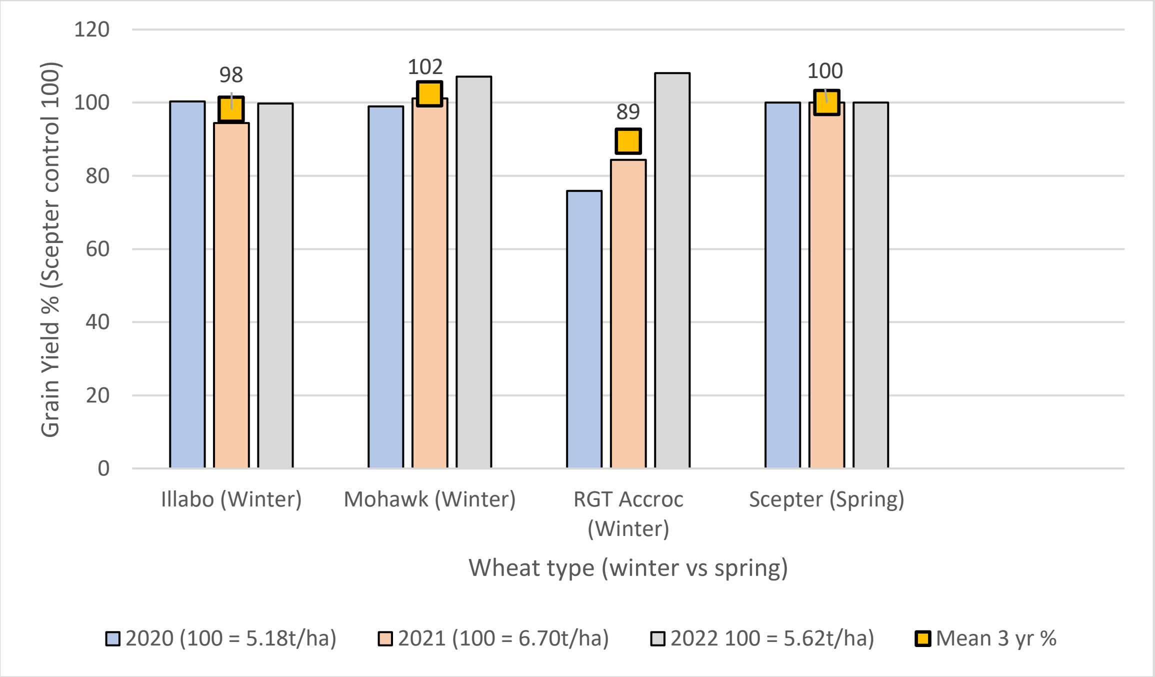
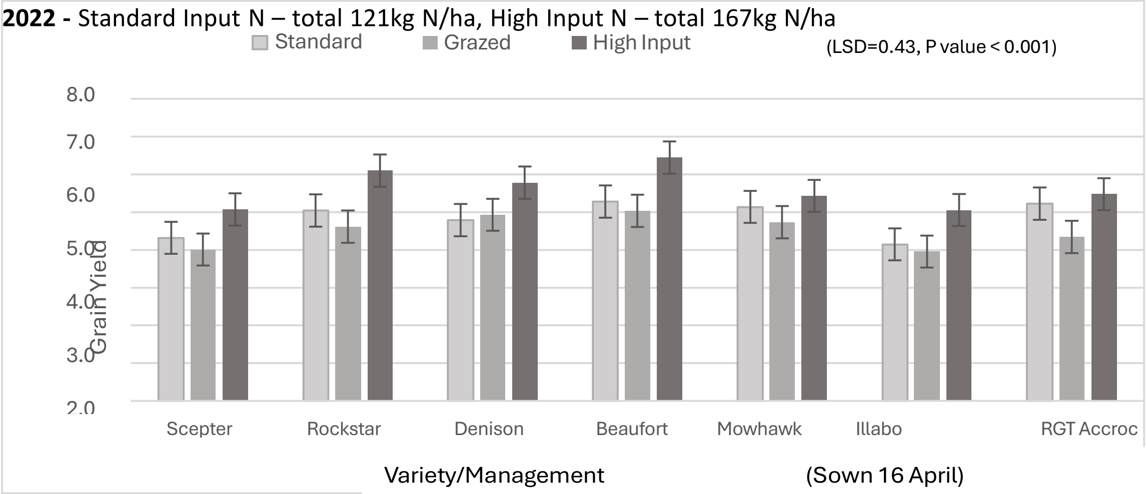


Figure 4. Winter vs spring germplasm grain yield (%) under high input management over three seasons – all trials sown April 16 Esperance CTC 2020 - 2022.

Closing the yield gap - reflection on FAR Australia research results from the Esperance Port Zone.

Nick Poole – FAR Australia



2022 - Standard Input N – total 121kg N/ha, High Input N – total 167kg N/ha

Figure 5. Influence of management approach on wheat variety performance **2022** – **Esperance CTC**.

Key point: *In seasons with high yield potential the return on higher N input in* ***wheat*** *has been significantly greater than fungicide input. Longer season spring wheat in coastal frost-free environments sown in mid-April have been higher yielding than winter wheat.*

MORNING TIMETABLE

WA CROP TECHNOLOGY CENTRE FIELD DAY (ESPERANCE PORT ZONE)
FRIDAY 5th SEPTEMBER 2025

In-field presentations	**Station No.**	**10.15am**	**10.30am**	**11.00am**	**11.30am**	**12.00pm**	**12.30pm**
Welcome and Introductions ***Nick Poole - Managing Director, FAR Australia*** ***Andrew Fowler - Director, FAR Australia Board*** *Outline the program for the day.*		**Gazebos**					**Gazebos**
David Cook, SEPWA and Dr Ben Jones, FAR Australia ***Pushing potential profit? Benchmarks for wet and drier environments*** *The first year results our new GRDC Hyper Profitable Crops project are out. Ben and David look at the analysis of agronomic and profitability benchmarking in the Esperance Port Zone.*	**1**		1	2			Lunch and refreshments kindly sponsored by AFGRI EQUIPMENT
Nick Poole & Deep Das, FAR Australia *Wheat versus barley – how do these two important cereal crops vary in performance, over the last five years in the Esperance Port Zone, when grown in the same rotation position (post canola)?*	**2**			1	2		
Dr Steve Marcroft, Marcroft Grain Pathology *Canola is hugely important for the Esperance Port Zone. Steve looks at the principal diseases of canola, examining our best approaches to control diseases, such as blackleg, stem canker and upper canopy infection, along with Sclerotinia.*	**3**				1	2	
Deep Das, Kate Trezise, Sophie Paul & Nick Poole, FAR Australia *The WA team look at this year's Germplasm Evaluation Network (GEN) where the latest germplasm entered by the breeders is put alongside some port zone controls with and without a fungicide package.*	**4**		2			1	
In-field presentations	**Station No.**	**10.15am**	**10.30am**	**11.00am**	**11.30am**	**12.00pm**	**12.30pm**

For the presentations, we would be obliged if you could remain within your designated group number.
Note we will only split into two groups if high numbers are in attendance.

Thank you for your cooperation.

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FAR Australia would like to thank Elders Esperance and South Coastal Agencies; Nutrien Ag Esperance for their sponsorship of todays event and the associated costs for our fabulous guest speakers.

WA CROP
TECHNOLOGY
CENTRE (ESPERANCE)

AFTERNOON TIMETABLE

WA CROP TECHNOLOGY CENTRE FIELD DAY (ESPERANCE PORT ZONE)
FRIDAY 5th SEPTEMBER 2025

In-field presentations	**Station No.**	**1.30pm**	**2.00pm**	**2.30pm**	**3.00pm**	**3.30pm**
						Gazebos
Mark Seymour, Principal Research Scientist, DPIRD *DPIRD/GRDC HiRES Long Term Rotation Experiment – what DPIRD are setting up and results to date.* *HiRES = High Rainfall Rotation Economics Sustainability*	5	1	2			**Lunch and refreshments kindly sponsored by** AFGRI EQUIPMENT
Nick Poole, FAR Australia ***Closing the yield gap - reflection on FAR Australia research results from the Esperance Port Zone Crop Technology Centre 2020 - 2024*** *Nick looks at some of the key FAR Australia results obtained over the last five years working in the Port Zone.*	6		1	2		
Associate Professor Angela van de Wouw, University of Melbourne *Impact of SDHI fungicide resistance in the blackleg pathogen - what does it mean for our approach to canola disease control in the future?*	7			1	2	
Dr Ben Jones, FAR Australia ***A spring in winter wheat clothing: spring yields with winter wheat flexibility in dry years.*** *Ben looks at the first year results from a project being run in the LRZ at Grass Patch.*	8	2			1	
In-field presentations	**Station No.**	**1.30pm**	**2.00pm**	**2.30pm**	**3.00pm**	**3.30pm**

For the presentations, we would be obliged if you could remain within your designated group number.
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Thank you for your cooperation.

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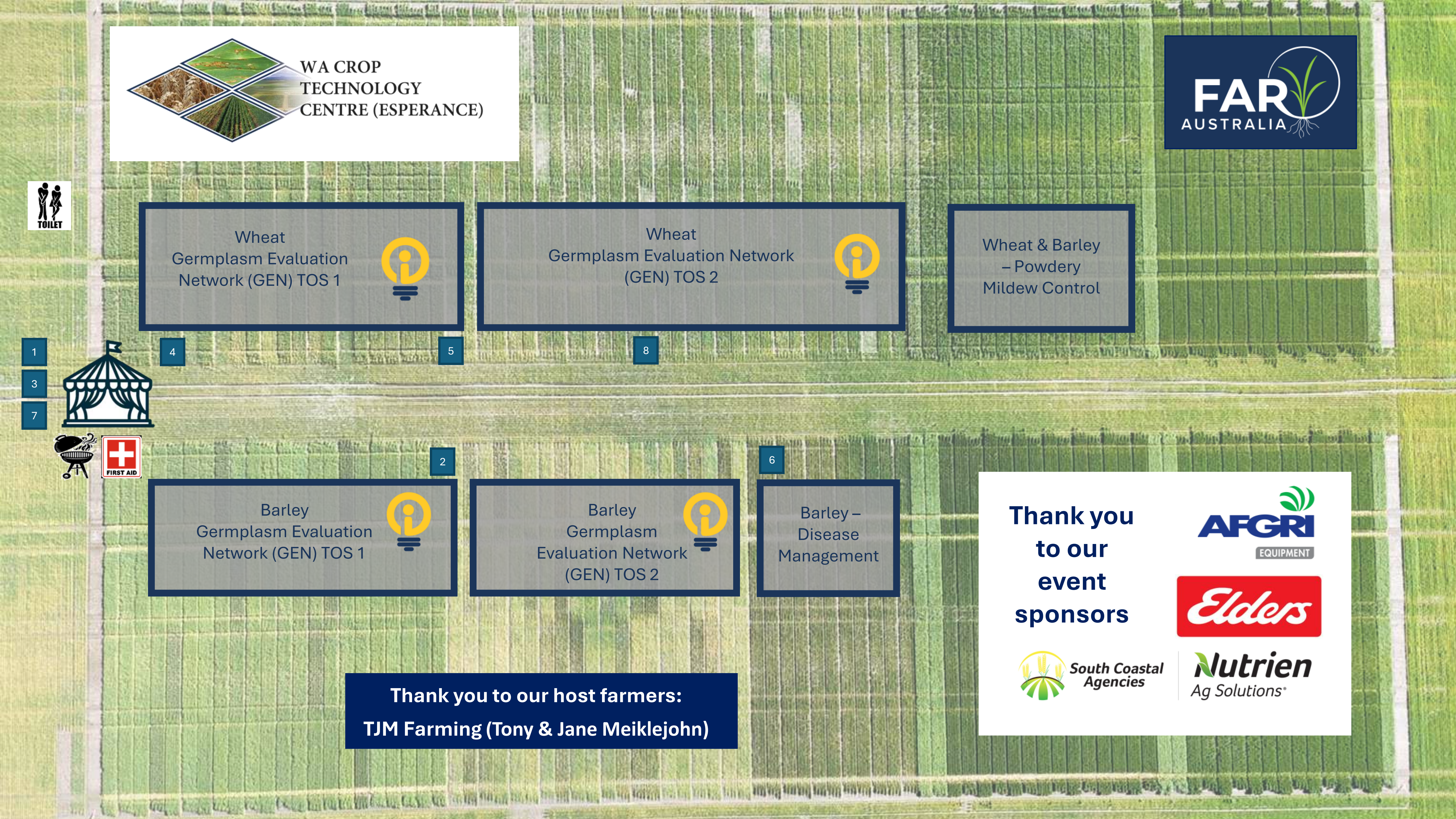
🟦 2

FAR Australia would like to thank Elders Esperance and South Coastal Agencies; Nutrien Ag Esperance for their sponsorship of todays event and the associated costs for our fabulous guest speakers.

WA CROP TECHNOLOGY CENTRE (ESPERANCE)

FAR AUSTRALIA



Thank you to our host farmers:
TJM Farming (Tony & Jane Meiklejohn)

Thank you to our event sponsors

AFGRI EQUIPMENT

Elders

South Coastal Agencies

Nutrien Ag Solutions

BIOLOGICAL BENCHMARKING- FIRST IN ITS FIELD

Biological Benchmarking, developed by FAR Australia, is a brand-new initiative launching in 2025 to independently evaluate biological crop protection and productivity-enhancing products under Australian conditions. As interest in sustainable farming practices grows, so too does the demand for reliable data on the performance of these products. This initiative aims to provide side-by-side comparisons of new biological options against conventional synthetic controls to support confident decision-making by growers and advisers.

It is:

- **independent**
- **scientifically robust and replicated**
- **aligned with real-world agronomic practice**
- **focused on productivity, sustainability, and profitability**

- **With FAR Australia funded control treatments**

Collaborating Industry Stakeholders

This program is designed for biological product developers, distributors, agronomists, private consultants, and farming groups seeking to better understand the performance and positioning of biological products and demonstrate them to the wider industry.

With increased availability and global interest in biological inputs—from microbial inoculants to plant defense stimulants and biopesticides—there is a growing need for rigorous testing. The Biological Benchmarking series will provide that platform, offering clarity and confidence in a rapidly evolving product space.

This initiative allows biological products to be evaluated under identical field conditions to synthetic standards, accelerating industry understanding and adoption of effective biological solutions.

Industry Innovations
leading the way to a brighter grains industry

BIOLOGICAL
BENCHMARKING
an independent biological evaluation network

HiRES

High Rainfall, Rotations, Economics and Sustainability

GRDC/DPIRD Investment 2025 to 2028

"Sustainable systems for profit maximisation in the HRZ of WA"

Mark Seymour, Nicolina Tesoriero, Andrea Hills, Erin Stevens and Joel Kidd

(DPIRD Esperance)

Project Outputs

1. By 2025, and annually thereafter gather field data for sustainability and profitability assessment of different farming system scenarios suited to the HRZ of WA.
2. By 2029, an assessment of the yield and sustainability impacts of the combinations of crop sequence, crop nutrition, and integrated disease management (IDM) strategies that were evaluated.
3. By 2029, Modelled medium to long term assessment of profitability and sustainability of crop production systems evaluated.

HiRES experiment at Gibson (EDRS) July 1st 2025

Department of Primary Industries and Regional Development
GOVERNMENT OF WESTERN AUSTRALIA

GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION

HiRES

High Rainfall, Rotations, Economics and Sustainability

Project Rationale:

In recent years, there have been growing concerns throughout the High Rainfall areas of the Albany and Esperance Port Zones regarding an increased prevalence of crop foliar diseases, and the impact this has on productivity, profitability, and fungicide use. This has implications on the longevity of crop varieties and fungicide active ingredients, due to break down of varietal resistance to disease, and an increase in disease resistance to fungicides. The main diseases of concern are net blotches in barley, blackleg in canola, and powdery mildew in wheat. In response, a 4-year crop rotation project has been implemented to explore Integrated Disease Management (IDM) strategies and farming systems that reduce disease impacts, fungicide resistance, and improve profitability and sustainability.

Progress to date:

In 2025, DPIRD established main trial sites to test a range of cropping systems in each port zone, at Kendenup and Gibson. Treatments were developed with input from a selected group of growers and advisors in each port zone. The baseline rotations are Canola-Cereal at both sites, with wheat being the cereal at Gibson, while Kendenup has 2 baseline rotations with the cereal being either barley or wheat. This reflects the prevalence of Canola-Wheat to the west of Albany highway, and Canola-Barley to the east of the highway in the Albany port zone. From these baselines, numerous alterations to management strategies and production systems have been implemented, often simultaneously as a comprehensive system package. These changes include use of varieties with improved disease resistance, introduction of alternative crops, for example faba beans, vetch, and barley where relevant, use of more robust or higher quality fungicide packages offset by targeted approaches through decision support tools, spore trapping technology and pathologist advice, and higher nutrition to support crop health and resilience. Stubble management and controlling weeds are also recognised methods for limiting disease risk, by reducing disease inoculum and populations of insects that are vectors of viral diseases, but these strategies are difficult to implement in small plots and effects are seen at a landscape level rather than within a trial.

Most treatments in these main trials have been fully phased, so that each crop species within a rotation is grown in each year of the trial, while maintaining the 4 replicates of each species by rotation. For example, a treatment involving a Faba bean – Canola – Wheat – Barley rotation, would have separate plots of all 4 species grown in every year of the project, and each phase of the rotation, being the crop species, is still replicated 4 times, so in effect there are 16 plots for this 1 treatment. This aims to ensure that each crop species is exposed to the range of seasonal conditions, and one is not unfairly exposed to a conducive or difficult season, which may impact its effect on subsequent crops. The benefit of the Faba bean to following crops may be reduced if the legume were only grown in one year that happened to impose challenging growing conditions. This concept also applies to rotations such as Faba bean – Wheat – Canola – Wheat, with 4 phases of this treatment, not 3, as the Wheat following Faba bean is not equivalent to Wheat following Canola. This does mean that the trial becomes very large even with only 12 main treatments.

This initial season has focused on taking baseline measurements and implementing each treatment well to set up the rotations for future seasons. The major setback for this site was an extended period of waterlogging for more than 7 days in mid-August, particularly impacting the cereals. The effect was variable across the site depending upon elevation and soil type/depth to clay or gravel. Once the waterlogging receded all cereal and canola plots received an additional 13-21kg/ha of nitrogen above the budgeted 120-200kg N/ha intending to aid recovery. Two of the vetch treatments were mulched on 8th August, having produced on average approximately 4.8t/ha of total dry matter, to allow preparation time for spring sowing of Spartacus CL barley intended for late August/early September, while the final vetch treatment will not be terminated until first pods are produced. Both legume species have nodulated adequately, however, on average faba beans scored higher than vetch. Higher nitrogen, phosphorus, potassium and sulphur have been detected in wheat and canola tissue samples of the high input treatments compared to baseline, while the chicken manure on wheat treatment with 80% of baseline fertiliser is showing equal, to slightly lower nutrients than baseline, with the greatest difference in nitrogen.

At Gibson, Scepter and Hyola Blazer TT were selected as the 'Baseline' and 'High Input' varieties of wheat and canola respectively. All other varieties and species were selected for better disease resistance to the previously mentioned diseases of concern as part of an IDM strategy, and were Brumby wheat, Neo CL barley, Pioneer PY429T canola, PBA Amberley Faba Beans, and RM4 vetch to grow maximum biomass. These varieties have performed mostly as expected with Brumby hosting less powdery mildew than Scepter, although levels have not been high in either. Similarly, PY429T has less blackleg than Blazer TT, but still received one fungicide at 30% bloom due to high modelled sclerotinia risk. Neo CL barley has been very clean for net blotches but has developed higher than expected levels of loose smut despite seed being well treated with an appropriate seed dressing. Faba beans have also shown minimal disease so far, despite regular warnings of conducive conditions – probably due to variety choice (PBA Amberley) and some well-timed fungicides – albeit disease levels can change rapidly in beans. Vetch has proven to be a haven for every disease hosted by this species, and it will be interesting to see the impact this has on botrytis and sclerotinia levels in subsequent faba bean and canola crops. Root disease was low across crop types, although there are some small differences, and cereals were treated with Victrato at seeding to mitigate very high crown rot risk following a wheat crop. The site shows good potential to develop differences in root disease risk and expression with different crop rotations.

Whilst preserving varietal disease resistance and fungicide efficacy are well recognised aspects of sustainability, there are many other broader components to this concept, some of which HiRES also attempts to investigate. The Australian Agricultural Sustainability Framework lists 17 Principles under the 3 Themes of Environmental Stewardship, Economic Resilience, and People, Animals and Community, although the Criteria by which to measure this are still not well-defined. Data collected from the HiRES project will be used by a University of Queensland project aimed at developing a 'Sustainability Index' by which agricultural producers can be benchmarked and potentially incentivised to have a higher rating. Some of the criteria within the Framework only apply at a farm or landscape level, while others will be modelled, not measured, for example Greenhouse Gas emissions. However, it is possible to measure some criteria at the scale of small plots managed as different production systems within a trial, such as water use efficiency, carbon sequestration, and soil health including biodiversity, provision of ecosystem services or functionality, and avoidance of landscape degradation.

The HiRES project has taken a particular Interest In measuring soil health, both chemically including Total Organic Carbon, and biologically, although many of these tests are relatively new and poorly understood in a commercial context. The tests chosen for inclusion were selected to cover key aspects of soil biological health, being genetic and functional diversity and capability, and quantifying biologically active material, while being commercially available and interpretable. These tests were SARDI Free-Living Nematodes (FLN) and Arbuscular Mycorrhizal Fungi (AMF), and Metagen Full Soil Health Analysis including DNA analysis of microorganisms and microarthropods, and quantification of soil enzymes and active carbon. Baseline testing has been conducted in a select number of plots at each site and will be repeated more broadly over time to monitor the impacts of the rotation treatments.

The FLN test has provided the most interesting results to date, particularly when we compare HiRES sites at Gibson and Kendenup with similar trials conducted at Northampton, Lake Grace, and Merredin as part of the Western Farming Systems GRDC/DPIRD project. All sites show nematode community profiles expected in normal agricultural ecosystems, but there is variability between sites, and also within some sites, particularly Lake Grace and Northampton. Rainfall and soil type may explain much of this variation between and within sites, but associated management practices, for example crop frequency and species within a rotation, and fertiliser inputs may also influence soil biology characteristics. Further research will be undertaken to better understand the drivers of microbial and nematode populations, and whether these measures are indicative of crop and system performance.

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A spring in winter wheat clothing?

Spring yields with winter wheat flexibility in dry years.

Ben Jones and Sophie Paul, FAR Australia

Introduction

The dream for winter wheats is the possibility of early (wet or dry), or late sowing whilst still flowering close to an optimum time. Additional biomass from the longer growing season and better utilisation of rainfall could possibly be grazed or left to convert into yield. The reality has been that in drier environments; winter wheats have achieved higher biomass but struggled to reliably convert that into higher yields.

Winter wheats differ from springs by having a requirement for a certain amount of cold temperature before development towards flowering (anthesis) continues. This is what gives them more stable anthesis dates. Whilst waiting for the cold, they tiller and accumulate biomass, if conditions permit. They've had little breeding effort in Australian environments compared to springs, but that also means that the possibility of further improvement exists.

The winter/spring wheat harvest index experiment at Grass Patch is being conducted by FAR Australia as part of a University of Melbourne led GRDC project set up to investigate the physiological mechanisms behind lower winter wheat yields in dry environments, and whether there are possibilities to at least match spring wheat yields with further genetic improvements.

Method

The experiment compared Australian winter and spring wheats released between 1983 and 2023 (Figure 1). Cultivars were chosen to give approximately equal anthesis dates with winters sown early (mid-April, ~10 mm irrigation to secure emergence), and springs sown a month later. Unfortunately at Grass Patch in 2024 there was some pre-emergent damage on spring wheats, but enough unaffected area remained for detailed quadrat harvests in most cases. Similar experiments were sown at Wagga (NSW), Dookie (Vic) and Turretfield (SA) in 2024.

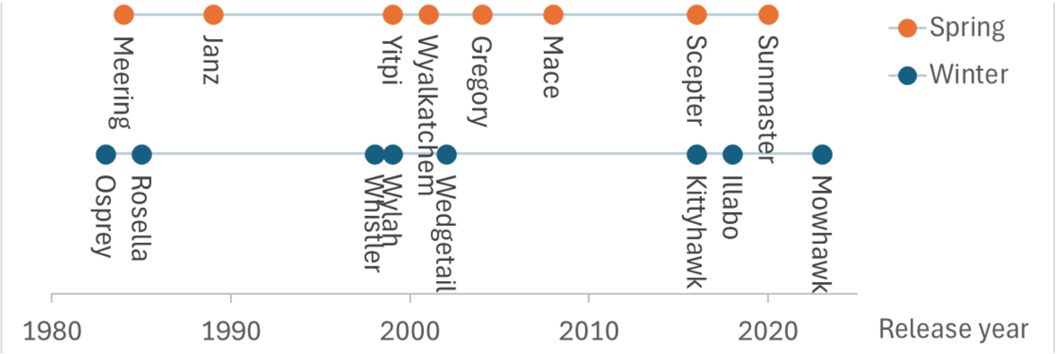

Figure 1. Release years for winter and spring cultivars in the experiment.

Measurements were timed to break crop growth into "vegetative" (up to flag leaf emergence), "grain set" (flag leaf to anthesis) and "grain fill" (anthesis to maturity) periods. In between each period the canopy was characterised by NDVI, height, light interception, leaf chlorophyll, and dry matter measurement of leaf, stem, spike (and ultimately grain).

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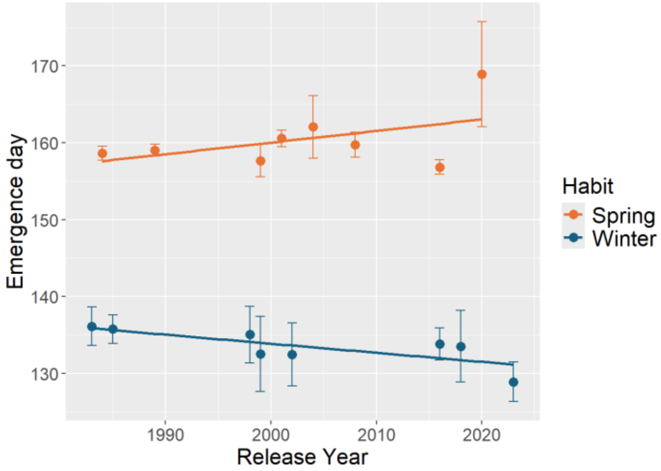
Results

Total growing seasons rainfall was 207 mm, with most falling in the winter months. Last significant fall was 12 mm on August 19.

Breeding has advanced the timing of flag leaf emergence and anthesis of the selected spring wheats (Figure 2b, c; trend not significant for both), and the emergence timing of winter wheats (Figure 2a, -0.15 days/yr; p=0.036). At flag leaf and anthesis, Whistler and Mace tended to be early, and EGA Gregory late.

a.



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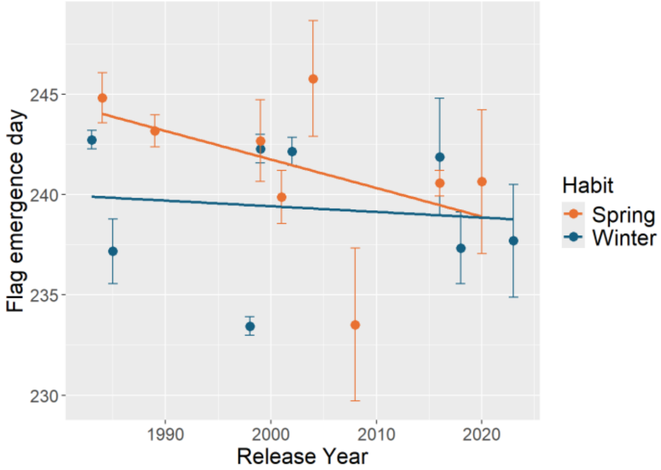

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c.

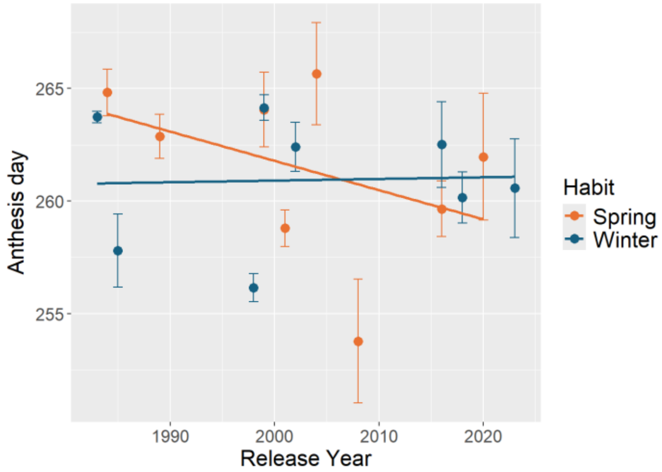
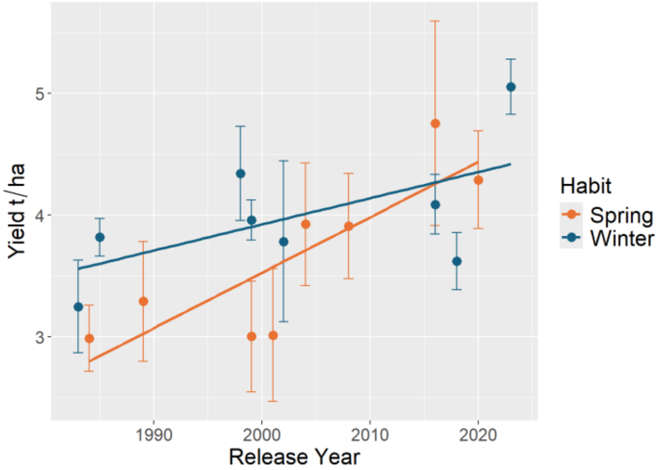


Figure 2a-c. Phenology of winter and spring cultivars at Grass Patch in 2024, against release year. Error bars are standard error of the mean, and trend lines fitted on means.

The vegetative period has shortened in springs (not shown; -0.30 days/yr; p=0.007), partly because of earlier flag leaf emergence. Grain set period has lengthened in winters, and the grain fill period has lengthened in springs (both not significantly).

Yield increased with release year for both spring and winter wheats (Figure 3a, +0.029 t/ha/yr; p<0.001). The increase related mostly to size of grains (Figure 3c, +0.185 mg/grain/yr, p<0.001). Although there was a visual trend to increase in grain number for spring wheats, in this experiment it wasn't significant (Figure 3b, p=0.38).

a.



A spring in winter wheat clothing?

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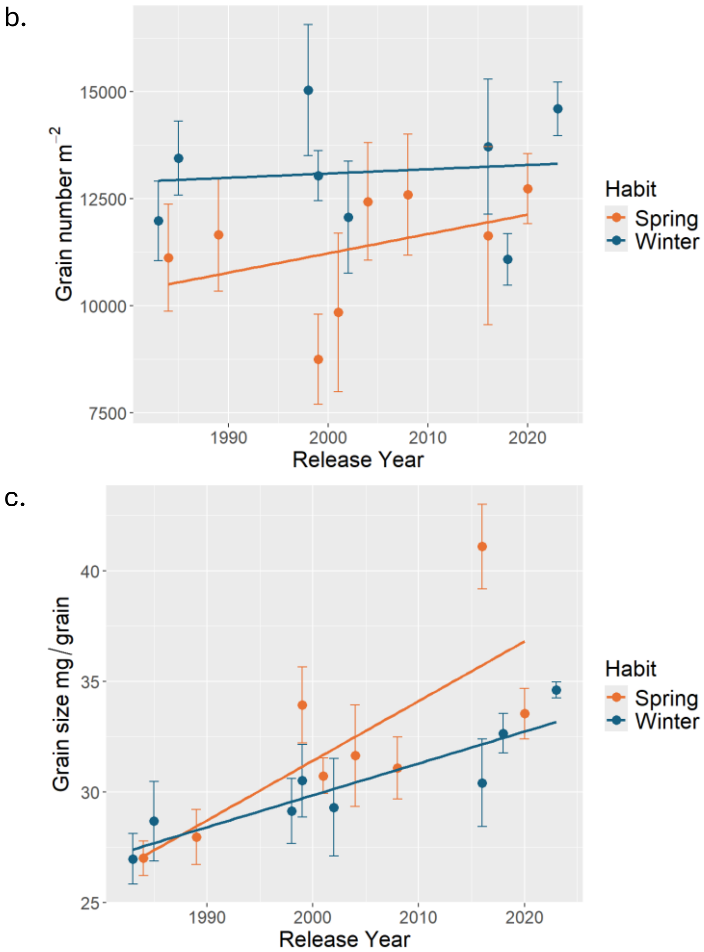

Figure 3a-c. Yield and grain number/size of winter and spring cultivars at Grass Patch in 2024, against release year. Error bars are standard error of the mean, and trend lines fitted on means.

Total biomass was highest for winters ($p<0.001$) and didn't change with release year (Figure 4). Total biomass increased with release year in spring wheat at flag leaf ($p=0.03$) and maturity ($p=0.09$), although the same trend wasn't evident at flowering. This led to more stem mass (not shown; $p=0.04$ for both).

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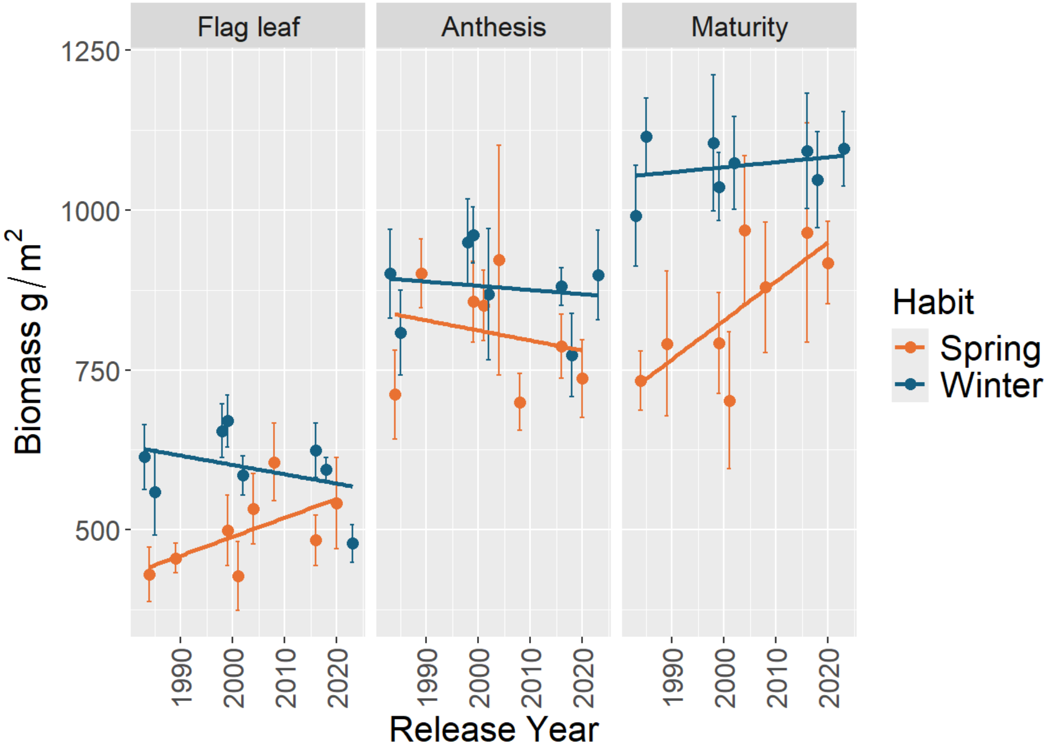

Figure 4. Biomass vs release year of spring and winter cultivars at flag leaf, anthesis and maturity in experiment sown at Grass Patch in 2024. Error bars are standard error of the mean, and trend lines fitted on means.

The proportion of biomass in the stem (not shown) also increased with release year for both winters and springs at flag leaf (0.1%/yr, p=0.003), and decreased at maturity (-0.1%/yr, p=0.001). Winters in general had more mass in the stem at flag leaf (+2.8%, p=0.003) and maturity (+3.1%, p<0.001). Recently released winters had less biomass in live leaves at flag leaf, and dead leaf at anthesis and maturity.

Despite the differences in biomass and allocation between winters and springs, significant differences in spike biomass were only measured at maturity (when the spike contained grain; + 70 g/m^2 for winters, p=0.006, and average increase for both of +3.3 g/m^2/yr, p<0.001).

Recently released winters had fewer spikes at flag leaf (p=0.053) and had little change in spike number between flag leaf and maturity. Approximately 110 fewer spikes/m^2 were measured at maturity in springs, with a trend for more of the reduction to take place by anthesis in recently released cultivars (-1.45 spikes/m^2/yr, p=0.003).

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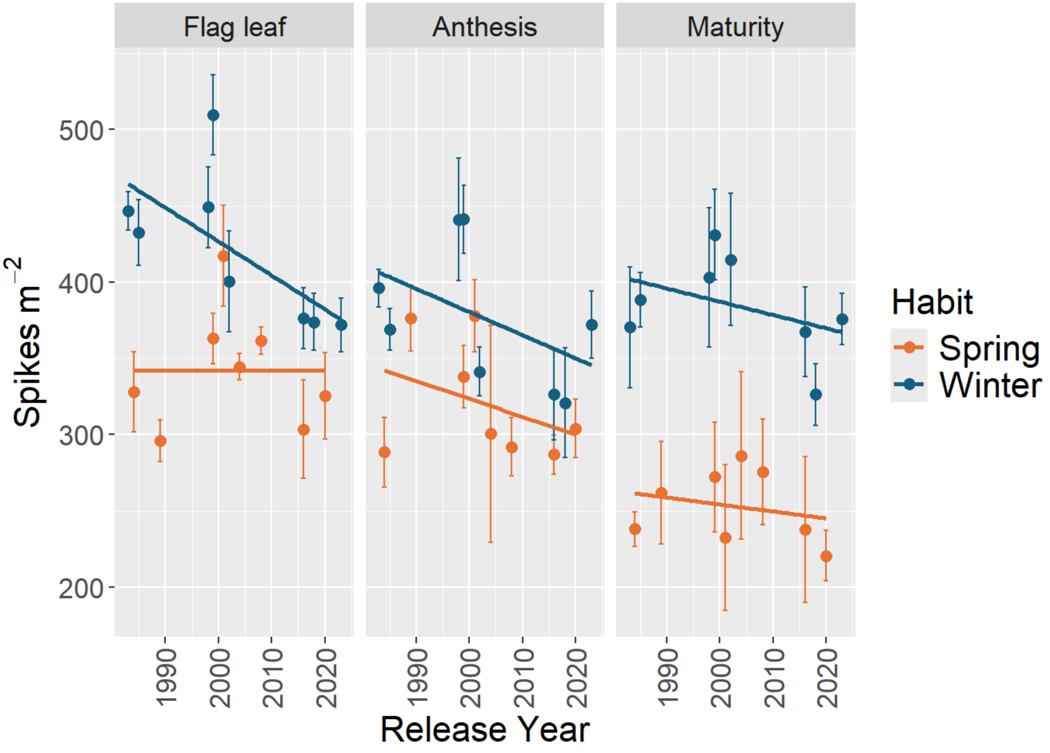

Figure 5. Spike number vs release year for spring and winter cultivars in experiment sown at Grass Patch in 2024. Error bars are standard error of the mean, and trend lines fitted on means.

Recently released springs had higher leaf chlorophyll at anthesis (also NDVI, but this was not significant), and there is some indication of a mixed strategy in winters (more recent released cultivars have also had increased NDVI). Winters intercepted more radiation (despite similar NDVI and leaf chlorophyll) at flag leaf (+10.5%, p=0.001), but no significant differences were measured at anthesis (p=0.85) and there were no significant trends with release year.

Discussion/Conclusion

The evidence from the Grass Patch experiment in 2024 is that breeding has narrowed the yield gap between winter and spring wheats (given similar flowering times), in a low rainfall environment. Much of the breeding effect for both winters and springs was in grain size rather than number (which was generally higher for the winters).

Winter cultivars produced higher biomass, but in recently released cultivars had partitioned more of that to the growing stem by flag leaf, set fewer spikes, and at maturity transferred more of that stem biomass to the grain. Spring cultivars were still more efficient at transferring biomass from stem to grain, and winter cultivars at maturity had more dead leaf, and also chaff mass (even in proportion to grain number). More recently released spring cultivars had higher biomass at maturity, which suggests post-anthesis growth of older cultivars possibly being limited by grain set or size. In this way, spring cultivars are becoming more winter-like.

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Winter cultivars also continued to maintain spike number with the dry finish (regardless of breeding). Spring cultivars had high spike mortality, with a higher proportion of that occurring before anthesis in more recently released cultivars

A surprising trend was the earlier emergence of recently released winter wheats. It will be interesting to see if this is duplicated in other environments.

In the 2024 season at Grass Patch, recently released winter wheats matched the yields of recently released springs. The comparative efficiency of modern spring wheats suggests the possibility of still higher yield potential in winters if more biomass can be transferred from the stem, and grain set more efficiently.

Acknowledgements

Thank you to the Longbottom family at Grass Patch for their assistance with establishing and maintaining the experiment, and to Lucinda Matthews, Deep Das and Nicky Tesoriero who made many of the measurements in 2024. Funding provided by GRDC under UoM2312-001RTX, with particular thanks to James Hunt and Juan Wang for the project concept, detailed protocols and logistical support.

WA CROP
TECHNOLOGY
CENTRE (ESPERANCE)

AFTERNOON TIMETABLE

WA CROP TECHNOLOGY CENTRE FIELD DAY (ESPERANCE PORT ZONE)
FRIDAY 5th SEPTEMBER 2025

In-field presentations	**Station No.**	**1.30pm**	**2.00pm**	**2.30pm**	**3.00pm**	**3.30pm**
						Gazebos
Mark Seymour, Principal Research Scientist, DPIRD *DPIRD/GRDC HiRES Long Term Rotation Experiment – what DPIRD are setting up and results to date.* *HiRES = High Rainfall Rotation Economics Sustainability*	5	1	2			Lunch and refreshments kindly sponsored by AFGRI EQUIPMENT
Nick Poole, FAR Australia ***Closing the yield gap - reflection on FAR Australia research results from the Esperance Port Zone Crop Technology Centre 2020 - 2024*** *Nick looks at some of the key FAR Australia results obtained over the last five years working in the Port Zone.*	6		1	2		
Associate Professor Angela van de Wouw, University of Melbourne *Impact of SDHI fungicide resistance in the blackleg pathogen - what does it mean for our approach to canola disease control in the future?*	7			1	2	
Dr Ben Jones, FAR Australia ***A spring in winter wheat clothing: spring yields with winter wheat flexibility in dry years.*** *Ben looks at the first year results from a project being run in the LRZ at Grass Patch.*	8	2			1	
In-field presentations	**Station No.**	**1.30pm**	**2.00pm**	**2.30pm**	**3.00pm**	**3.30pm**

For the presentations, we would be obliged if you could remain within your designated group number.
Note we will only split into two groups if high numbers are in attendance.

Thank you for your cooperation.

🟩 1
🟦 2

FAR Australia would like to thank Elders Esperance and South Coastal Agencies; Nutrien Ag Esperance for their sponsorship of todays event and the associated costs for our fabulous guest speakers.

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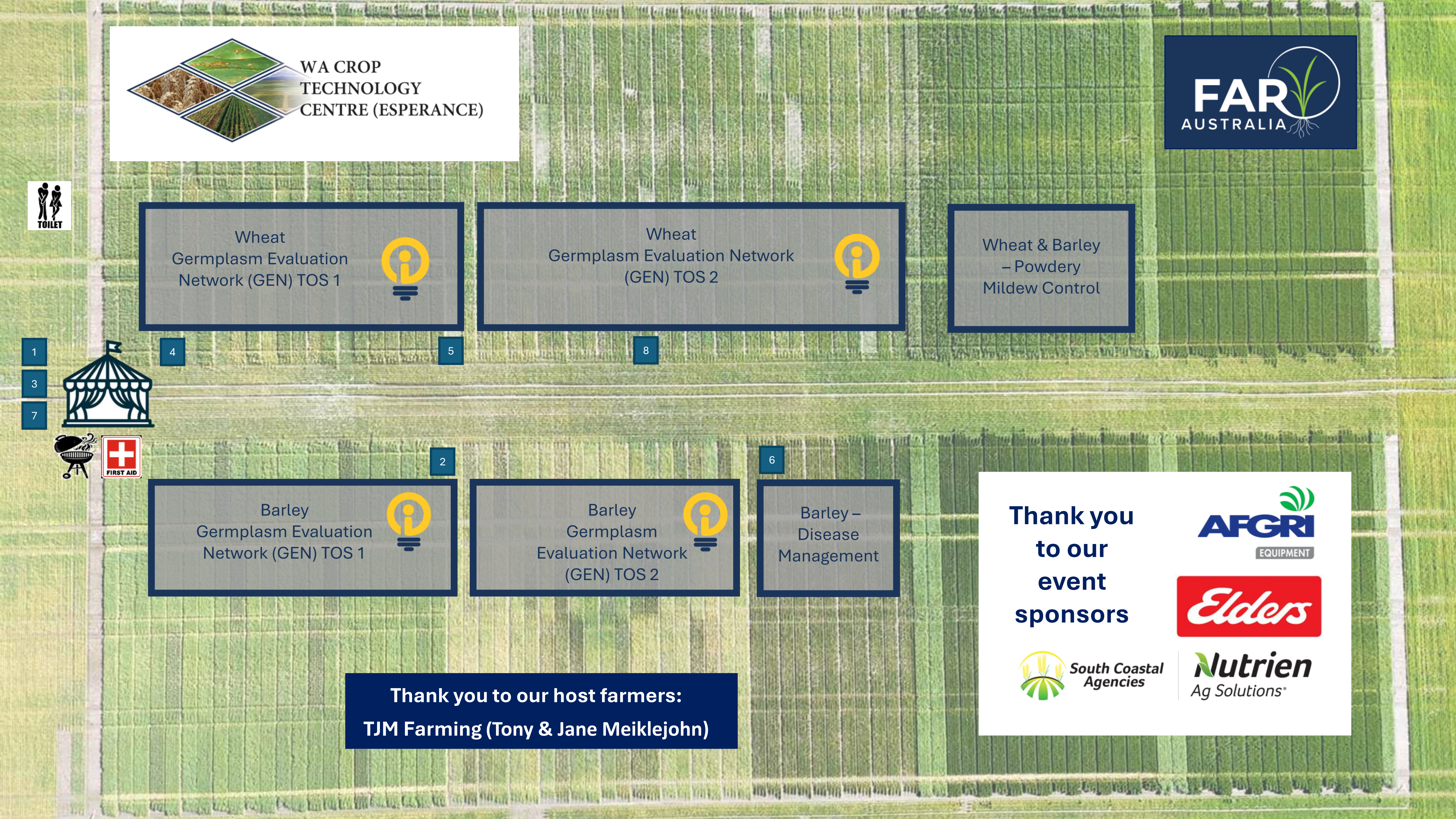

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GERMPLASM EVALUATION NETWORK (GEN) - BACKGROUND

Hagley, TAS

Wallendbeen, NSW

Esperance, WA

FAR Australia has been working with breeders to bring new products to the Australian Grains industry since its inception in 2012. It is a trusted development partner for many breeders, assisting with bringing in new germplasm to the marketplace, whilst ensuring the correct management to fulfil the genetic yield potential.

Industry Collaborations

FAR Australia is once again partnering with industry to independently showcase ***germplasm*** performance in a series of high productivity ***evaluation*** trials across the country as part of its Industry Innovations (II) initiative.

To develop independent research results on profitable germplasm developments in wheat, barley, milling oats and canola, using specific research strategies designed by FAR Australia for the High and Medium Rainfall Zones of Australia.

Should you wish to invest into FAR Australia's Germplasm Evaluation Network, please contact Darcy Warren 0455 022 044 darcy.warren@faraustralia.com.au

This independent initiative delivers a coordinated and independent network of high productivity trials in wheat, barley and canola. The trials will be managed 'plus and minus' fungicide with control varieties provided by FAR Australia.

2024 WA Barley GEN trial (Gibson, courtesy of Jordan Whiting)

Sown: 10 May 2024
Harvested: 07 November 2024
Previous Crop: 2023-Canola

FAR Code: FAR WAE II B24-23-02
GSR (Apr-Oct): 278.6mm
Soil Type: Loamy Sand (deep ripped 2022)

Key Points

- *A drier season at the start and finish resulted in 279mm growing season rainfall (GSR) and grain yields that ranged from 4.64 – 6.07t/ha depending on variety and fungicide input.*
- *Net form net blotch infection (NFNB) and phenology appeared to be key drivers of yield with Cyclops, Neo CL, Minotaur and Bigfoot CL (AGTB0669) having the highest yields and lowest (<2.5% plot infection) NFNB infections.*
- *Although there was no significant yield response to fungicide application (p=0.12) there was a general trend to indicate a yield increase from a two-spray fungicide programme in those varieties showing the highest levels of NFNB in untreated crops.*
- *The highest levels of NFNB infection in untreated crops were recorded in RGT Planet, KWS Thalis, RGT Orbiter and RGT Asteroid, and although fungicide lifted yields, fungicide protection was ineffective in these varieties during grain fill, suggesting fungicide resistance in the NFNB pathogen is influencing results.*
- *As a general trend the quicker developing varieties tended to perform slightly stronger than the later developing varieties, which was most evident in comparisons of Neo CL and Rosalind (quicker developing) with Ember formerly IGB21130 (slower developing).*
- *The warmer drier grain fill period had the effect of increasing screenings and reducing retentions, particularly in the later developing varieties.*
- *No varieties achieved malt (as per CBH 2024/25 receival requirements) due to low test weights.*

Yield (t/ha) & quality data (% protein, test weight, % screenings)

There were significant differences in yield and quality due to variety (p=<0.001), but fungicide effects, whilst generally positive, were smaller and not statistically significant (Tables 1-3 & Figure 1).

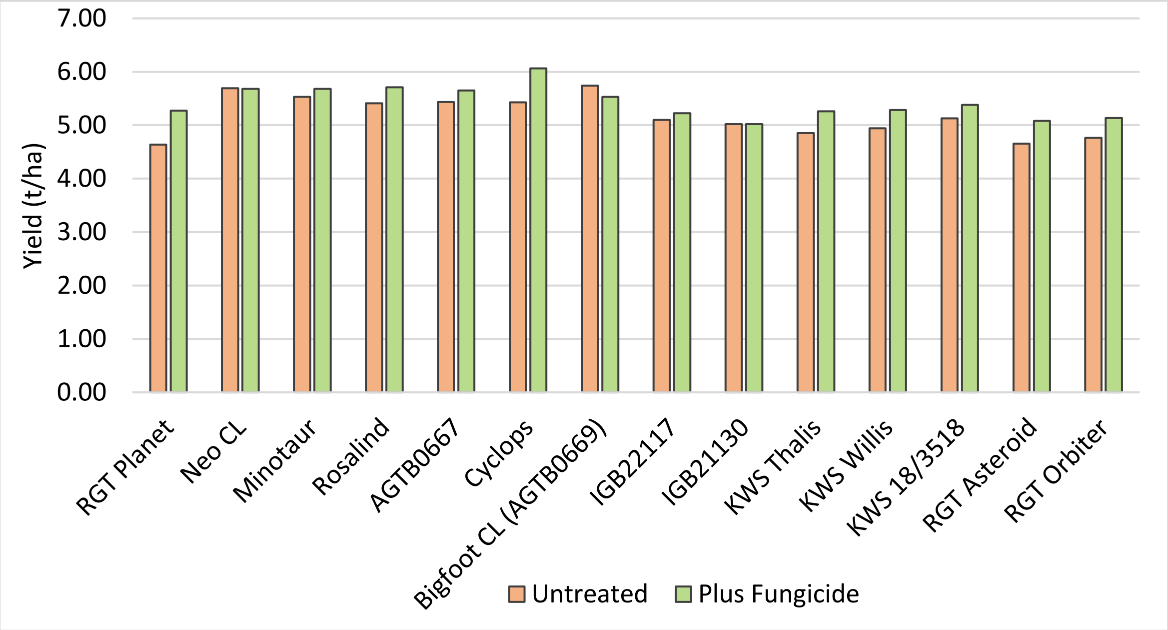

Figure 1. Influence of fungicide and variety on yield (t/ha). All fungicide differences are not significant – May 10 sown (staggered late May germination).

Table 1. Influence of fungicide on the grain yield (t/ha) of barley varieties plus and minus fungicide – May 10 sown.

		Yield (t/ha)					
Variety		**Untreated**		**Plus fungicide**		**Mean**	
1.	RGT Planet *(s)*	4.64	-	5.27	-	**4.96**	**cd**
2.	Neo CL *(s)*	5.69	-	5.68	-	**5.68**	**a**
3.	Minotaur *(s)*	5.53	-	5.68	-	**5.60**	**a**
4.	Rosalind *(s)*	5.41	-	5.71	-	**5.56**	**ab**
5.	AGTB0667 *(s)*	5.43	-	5.65	-	**5.54**	**ab**
6.	Cyclops *(s)*	5.43	-	6.07	-	**5.75**	**a**
7.	Bigfoot CL (AGTB0669) *(s)*	5.74	-	5.53	-	**5.64**	**a**
8.	IGB22117 *(s)*	5.10	-	5.22	-	**5.16**	**cd**
9.	IGB21130 *(s)*	5.02	-	5.02	-	**5.02**	**cd**
10.	KWS Thalis *(s)*	4.85	-	5.26	-	**5.06**	**cd**
11.	KWS Willis *(s)*	4.94	-	5.28	-	**5.11**	**cd**
12.	KWS 18/3518 *(s)*	5.13	-	5.38	-	**5.25**	**bc**
13.	RGT Asteroid *(s)*	4.65	-	5.08	-	**4.87**	**d**
14.	RGT Orbiter *(s)*	4.77	-	5.14	-	**4.95**	**cd**
	Mean	**5.17**	**-**	**5.43**	**-**	**5.30**	
	LSD Variety p = 0.05	0.33		**P value**		<0.001	
	LSD Management p = 0.05	ns		**P value**		0.121	
	LSD Variety x Man. p = 0.05	ns		**P value**		0.424	

Retention and screenings varied significantly across varieties, and better results were typically seen in varieties that developed quicker and filled grain in more favourable conditions (Table 2 & 3).

Table 2. Influence of fungicide on the retention (% > 2.5mm) of barley varieties plus and minus fungicide – November 7 harvest.

		Retention (%)					
Variety		**Untreated**		**Plus fungicide**		**Mean**	
1.	RGT Planet	74.4	-	74.1	-	**74.3**	**cd**
2.	Neo CL	84.7	-	89.1	-	**86.9**	**a**
3.	Minotaur	77.5	-	84.4	-	**80.9**	**ab**
4.	Rosalind	85.4	-	82.1	-	**83.8**	**ab**
5.	AGTB0667	83.8	-	85.8	-	**84.8**	**a**
6.	Cyclops	74.8	-	82.6	-	**78.7**	**bc**
7.	Bigfoot CL	85.7	-	87.8	-	**86.7**	**a**
8.	IGB22117	78.3	-	78.8	-	**78.5**	**bc**
9.	IGB21130	60.9	-	59.5	-	**60.2**	**e**
10.	KWS Thalis	78.1	-	78.4	-	**78.2**	**bc**
11.	KWS Willis	80.2	-	82.9	-	**81.6**	**ab**
12.	KWS 18/3518	75.5	-	74.0	-	**74.7**	**cd**
13.	RGT Asteroid	72.2	-	70.7	-	**71.4**	**d**
14.	RGT Orbiter	68.6	-	78.0	-	**73.3**	**cd**
	Mean	**77.1**	**-**	**79.2**	**-**	**78.1**	
	LSD Variety p = 0.05	6.0		**P value**		<0.001	
	LSD Management p = 0.05	ns		**P value**		0.379	
	LSD Variety x Man. p = 0.05	ns		**P value**		0.652	

Table 3. Influence of fungicide on the screenings (% < 2.2mm) of barley varieties plus and minus fungicide – November 7 harvest.

Screenings (&)							
Variety		**Untreated**		**Plus fungicide**		**Mean**	
1.	RGT Planet	4.5	-	4.7	-	**4.6**	**bcd**
2.	Neo CL	2.9	-	2.1	-	**2.5**	**f**
3.	Minotaur	4.1	-	2.5	-	**3.3**	**def**
4.	Rosalind	3.3	-	4.7	-	**4.0**	**c-f**
5.	AGTB0667	3.0	-	3.2	-	**3.1**	**def**
6.	Cyclops	4.8	-	3.9	-	**4.3**	**b-e**
7.	Bigfoot CL	2.9	-	2.8	-	**2.9**	**ef**
8.	IGB22117	4.0	-	4.1	-	**4.1**	**c-f**
9.	IGB21130	9.2	-	10.0	-	**9.6**	**a**
10.	KWS Thalis	3.6	-	3.6	-	**3.6**	**def**
11.	KWS Willis	2.9	-	2.6	-	**2.7**	**ef**
12.	KWS 18/3518	4.6	-	4.9	-	**4.7**	**bcd**
13.	RGT Asteroid	5.9	-	5.7	-	**5.8**	**b**
14.	RGT Orbiter	6.3	-	4.5	-	**5.4**	**bc**
	Mean	**4.4**	**-**	**4.2**	**-**	**4.3**	
	LSD Variety p = 0.05	1.7		**P value**		<0.001	
	LSD Management p = 0.05	ns		**P value**		0.732	
	LSD Variety x Man. p = 0.05	ns		**P value**		0.907	

Disease assessment data

At the start of grain fill NFNB was the principal disease present in the trial (Figure 2) with evidence that despite two foliar fungicides, treated plots were not controlling the infection. This lack of control has been widely observed in HRZ regions in both 2023 and 2024 indicating that the NFNB pathogen is increasingly resistant to our fungicide arsenal, in this case DMI and SDHI fungicides.

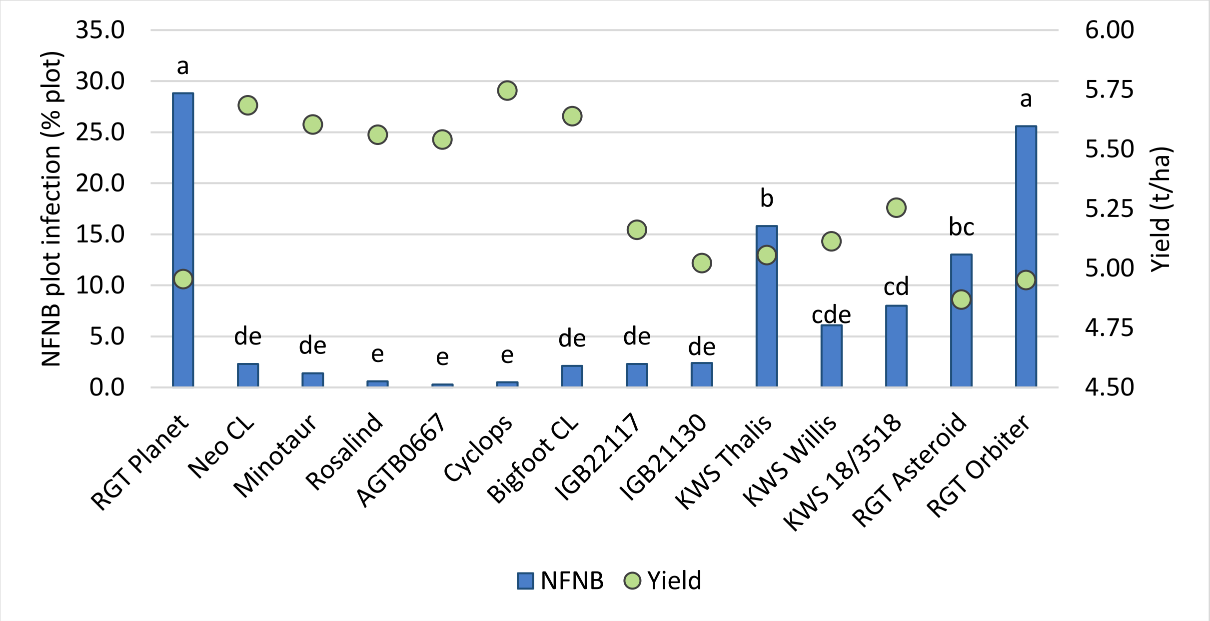

Figure 2. Influence of variety (average of plus and minus fungicide managements) on plot % infection of Net form net blotch (NFNB) (mean of treated & untreated) compared with grain yield – assessed September 9 (NFNB, Cultivar LSD (p<0.05) = 7.1, P value = <0.001).

Site and weather information

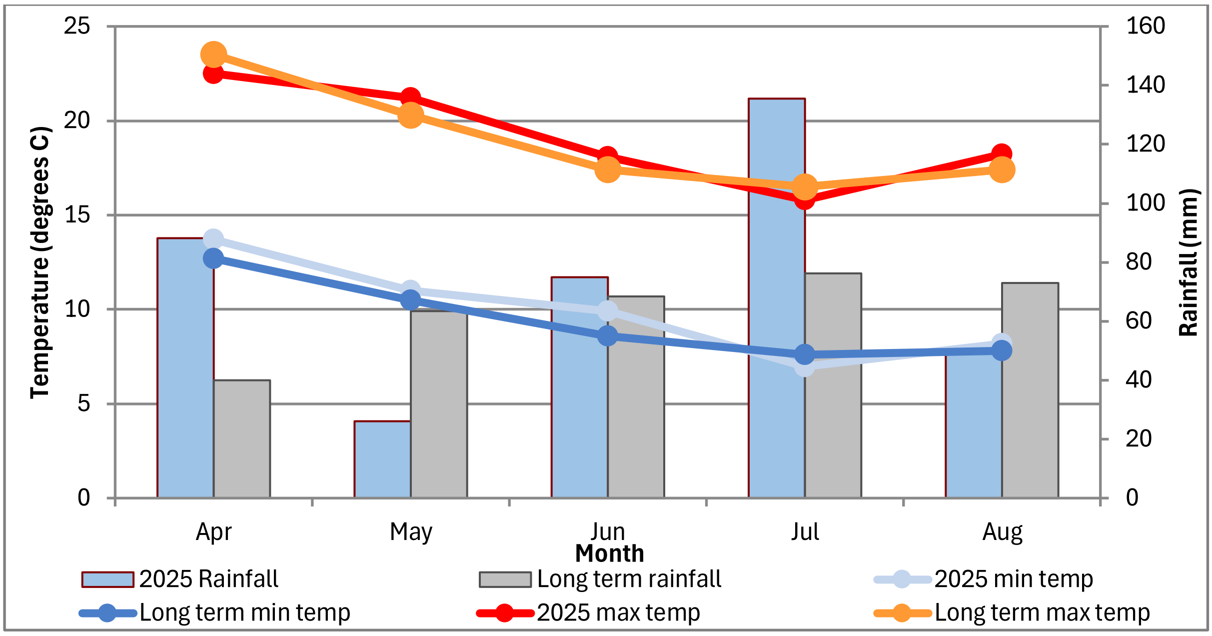

Figure 1. 2025 growing season rainfall and long-term rainfall, 2025 min and max temperatures and long-term min and max temperatures (1950-2025) (recorded at Esperance Aero). *Growing season rainfall (April to August) = 421.4mm.*

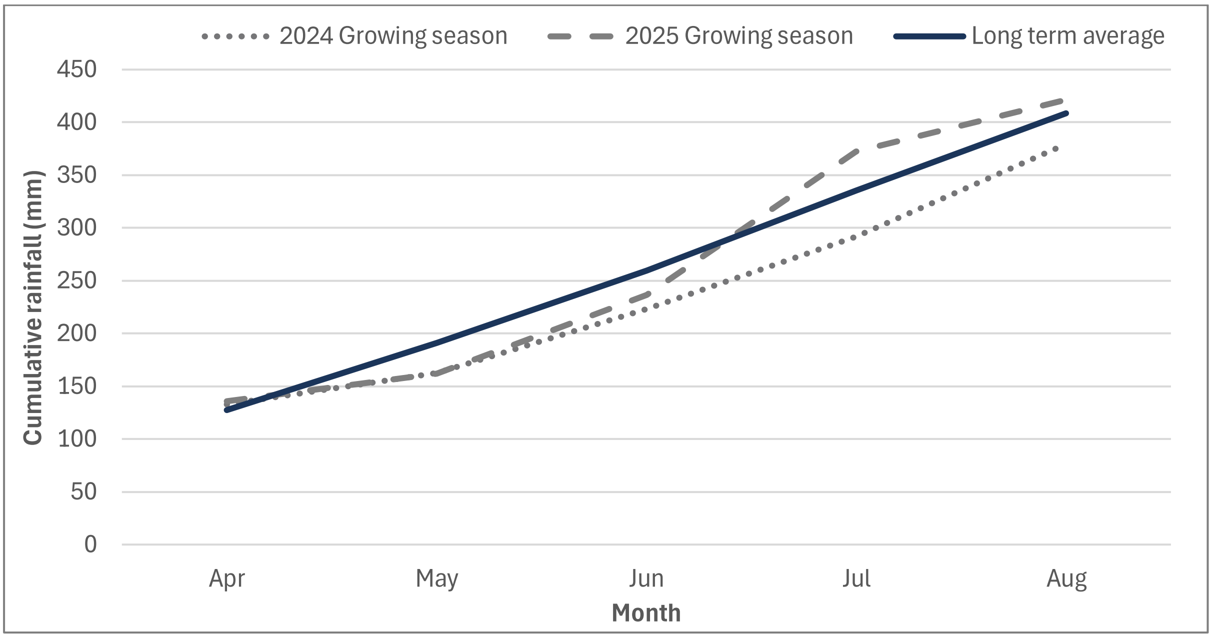

Figure 2. Cumulative growing season rainfall for 2024, 2025 and the long-term average for the growing season.

Site and weather information

Neridup TOS1

Nutrition

Date	Product	Rate/ha	Placement
26-Mar	MOP	40kg/ha	Broadcast
1-May	Agflow Manganese	80 kg/ha	Basal Fertilizer
3-Jul	Urea	170kg/ha	Broadcast
23-Jul	Urea	76kg/ha	Broadcast

Crop Protection

Date	Product	Rate/ha	Placement
30-Apr	Paraquat 360 Trifluralin 480 Trojan	1.67L 2L 40ml	Pre-Emergence
29-May	Mateno Complete	750ml	Post-emergence
29-May	Trojan	10ml	Post-emergence

Neridup TOS2

Nutrition

Date	Product	Rate/ha	Placement
26-Mar	MOP	40kg/ha	Broadcast
30-May	Agflow Manganese	80 kg/ha	Basal Fertilizer
3-Jul	Urea	170kg/ha	Broadcast
23-Jul	Urea	76kg/ha	Broadcast

Crop Protection

Date	Product	Rate/ha	Placement
30-Apr	Mateno Complete	750ml	Pre-Emergence
30-Apr	Trojan	40ml	Pre-Emergence
11-Jul	Velocity	1L	Post-emergence

Esperance HRZ GEN TOS1

Sowing Date	1-May
Sowing Rate	200 Seeds/m2
Sowing Fertilizer	80kg/ha Agflow Manganese
Total Nitrogen	113kg/ha

Fungicide	Full Fungicide	Untreated
GS31	Prosaro 0.30 L/ha	--
GS39	Aviator Xpro 0.50 L/ha	--

Site and weather information

Esperance HRZ GEN TOS2

Sowing Date	**30-May**
Sowing Rate	200 Seeds/m2
Sowing Fertilizer	80kg/ha Agflow Manganese
Total Nitrogen	113kg/ha

Fungicide	**Full Fungicide**	**Untreated**
GS31	Prosaro 0.30 L/ha	--
GS39	Aviator Xpro 0.50 L/ha	--

FUNGICIDE FINGERPRINTING
an independent fungicide evaluation network

Would you like to test your fungicide in 2026?

This independent initiative allows the industry to compare product applications and timings under identical conditions, assessing efficacy, yield response, and profitability. It helps generic manufacturers showcase their products and provides a platform for new actives to demonstrate improvements over existing standards. Resellers and consultants can also test fungicide strategies before recommending them to clients.

Fungicide Fingerprinting, developed by FAR Australia, was 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 fungicide strategies to help growers and advisers make better decisions when managing disease. It is:

- independent
- accurate
- consistent in the approach to disease assessment
- within the label stipulations and AFREN compliant control framework

Collaborating Industry Stakeholders

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

Purpose

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

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SOWING THE SEED FOR A BRIGHTER FUTURE

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