WA CROP TECHNOLOGY CENTRE (ALBANY)

Friday 6 August 2021

9am – 11am

‘Gunwarrie’, 411 Gunwarrie Road, Frankland River 6396

Regional partner

Trial site courtesy of Kellie Shields and Terry Scott

The GRDC HRZ Farming Systems Project is led by DPIRD in collaboration with:

The GRDC Hyper Yielding Crops project is led by FAR Australia in collaboration with:

VISITOR INFORMATION

We trust that you will enjoy your morning with us at our Crop Technology Centre (Albany Port Zone) Field Walk. Your health and safety is 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 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

- Should you require any assistance, please ask a member of FAR Australia staff.

LITTER

- 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).

Thank you for your cooperation, enjoy your morning.

COVID-19

Help us keep COVID-19 away

If you are visiting FAR Australia offices or trial sites, please observe the following good hygiene practices to reduce the risk of COVID-19 infection:

- Sanitise your hands when entering the office or trials site and at regular intervals.

- Wash your hands regularly for 20 to 30 seconds. If soap and water is not available, use an alcohol-based hand sanitiser. Hand sanitiser does not replace washing your hands after using the bathroom.

- Avoid touching your eyes, nose and mouth.

- Cover your mouth and nose when coughing and sneezing with a tissue or cough into your elbow.

- Dispose of used tissues into a bin immediately and wash your hands afterwards.

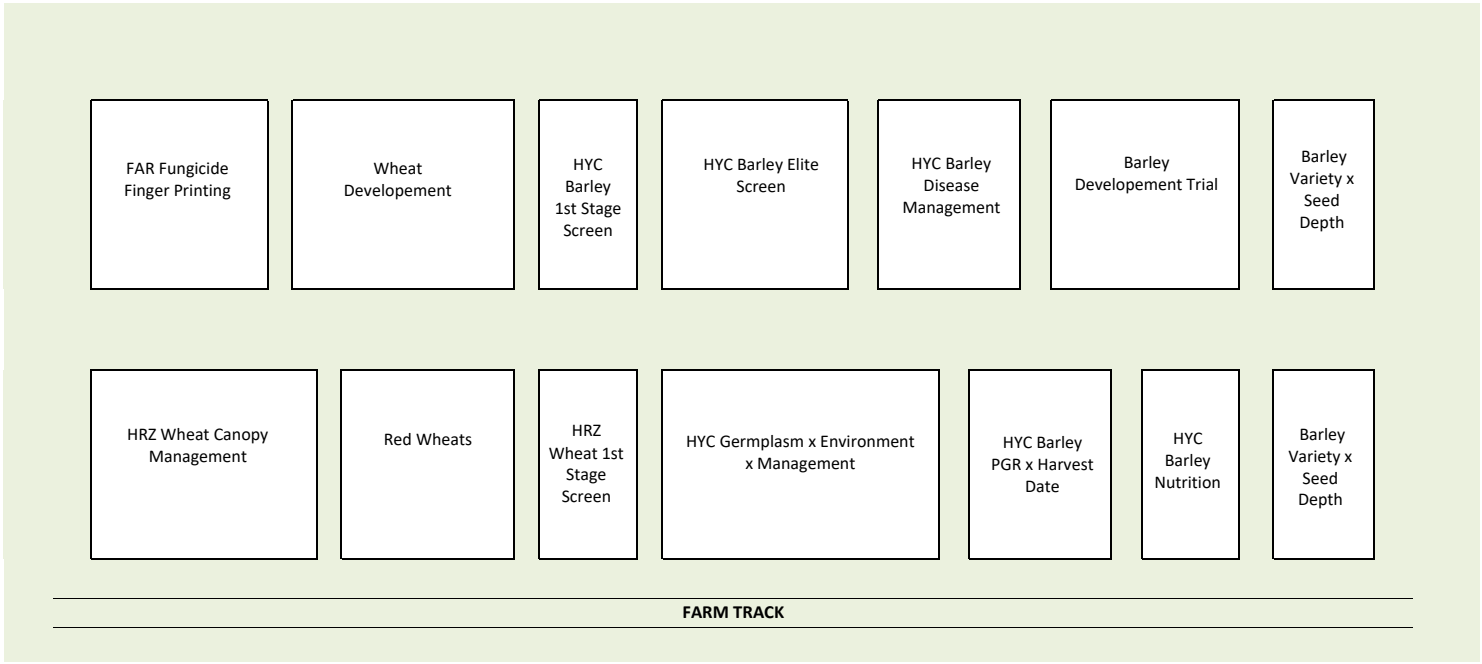
- Practice social distancing:
    - Keep a distance of 1.5 metres between you and other people.
    - Avoid crowds and large public gatherings.
    - Avoid shaking hands or any other physical contact.

Thank you for your cooperation.

WA CROP TECHNOLOGY CENTRE (ALBANY)

SITE PLAN 2021

FEATURING HYPER YIELDING CROPS & HIGH RAINFALL ZONE (HRZ) FARMING SYSTEMS



WA Crop Technology Centre (Albany Port Zone)

Frankland

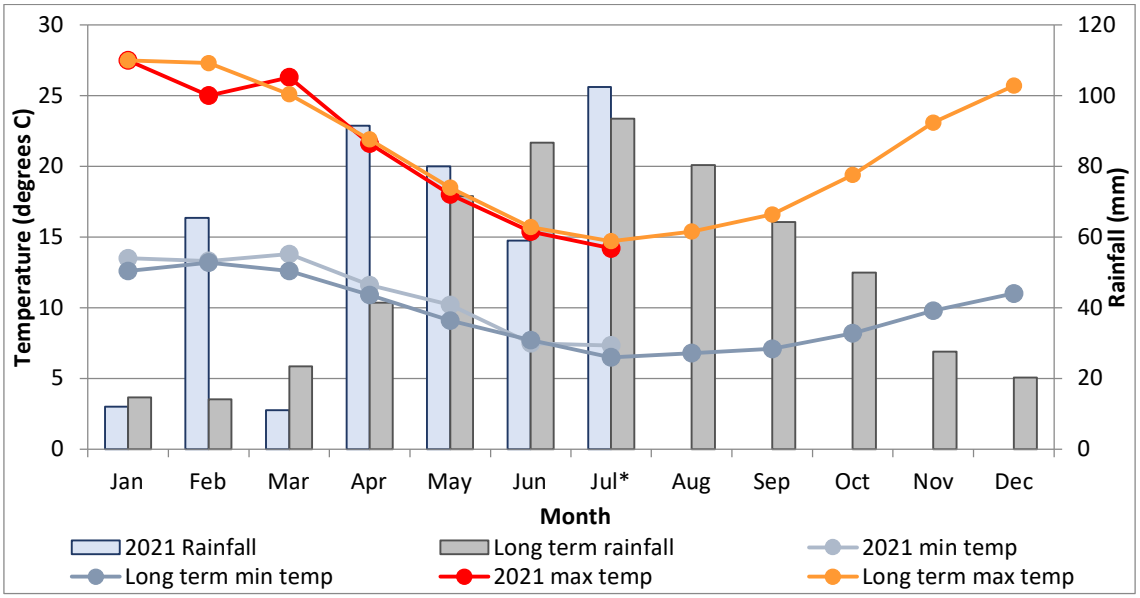


Figure 1. 2021 yearly rainfall so far (as of 27 July) and long-term rainfall (1923-2021) (recorded at Frankland), 2021 min and max temperatures and long-term min and max temperatures (1995-2021) (recorded at Rocky Gully). *Rainfall April to July 28th= 333.0mm (Decile 9).*

Higher than average rainfall in April and May have resulted in April to June producing a decile 9 start to the season. Rainfall for July is already above the long-term average with four days still remaining for the month.

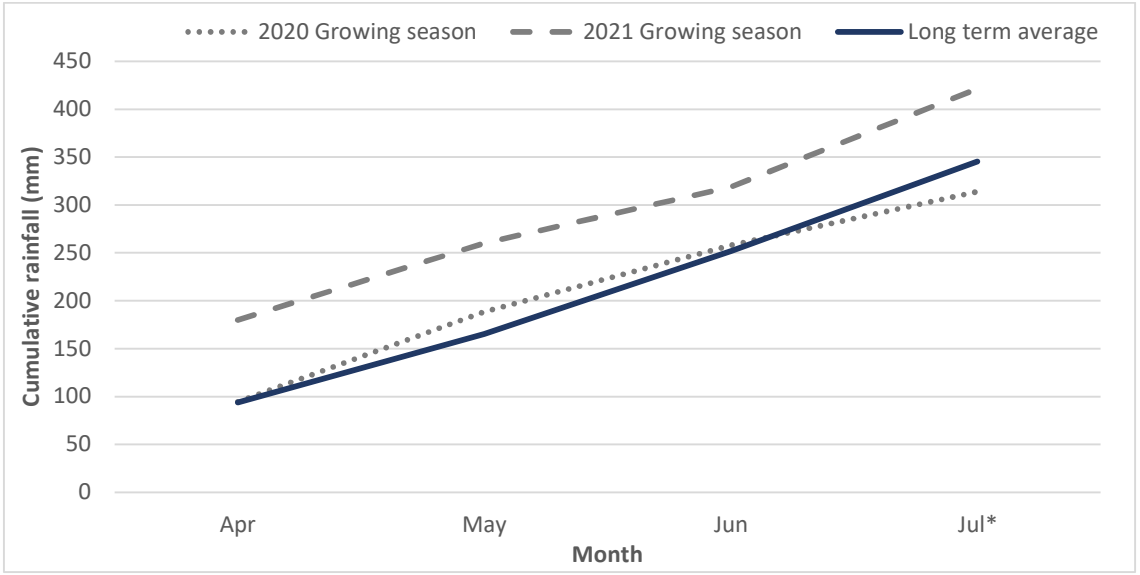


Figure 2. Cumulative growing season rainfall for 2020, 2021 and the long-term average for the growing season.

WELCOME TO THE WA CROP TECHNOLOGY CENTRE (ALBANY PORT ZONE) FIELD WALK

FEATURING THE GRDC'S HIGH RAINFALL ZONE FARMING SYSTEMS AND HYPER YIELDING CROPS

On behalf of both project teams, I am delighted to welcome you to the 2021 WA Crop Technology Centre (Albany Port Zone) Field Walk. The centre currently hosts two research projects – The GRDC's High Rainfall Zone (HRZ) Farming Systems project and the GRDC's Hyper Yielding Crops (HYC) project.

This Crop Technology Centre is host to the GRDC's HRZ Farming Systems project which is led by the Department of Primary Industries and Regional Development (DPIRD) in collaboration with FAR Australia and Commonwealth Scientific and Industrial Research Organisation (CSIRO). This project has the objective of optimising cropping in western HRZ regions. Research this season at Frankland is looking at first wheat following canola. The canola trials being led by CSIRO are based near Kojonup.

This Crop Technology Centre is also host to the WA Hyper Yielding Crops (HYC) Centre of Excellence. Led by the Field Applied Research (FAR) Australia, the HYC Project is funded by the Grains Research and Development Corporation (GRDC) and aims to push the economically attainable yield boundaries of wheat, barley and canola. HYC builds on the success of the GRDC's four-year Hyper Yielding Cereals Project in Tasmania, which demonstrated that it is possible to significantly increase yields through sowing the right cultivars and effective implementation of appropriately tailored management strategies. As well as the five research centres across the Australia HRZ the project wants to engage with you to scale up the results and create a community network aiming to lift productivity. If you are interested in getting involved in the project then get in touch (see details in this booklet).

Should you require any assistance throughout the day, please don't hesitate to contact a staff member. We hope you find this informal field walk useful, and as a result, take away new ideas which can be implemented in your own farming business. Have a great morning and we look forward to seeing you here again at our annual field day on 17th September.

I would like to thank the GRDC for investing in these research programmes on display here today and also thanks to Kellie Shields and Terry Scott our host farmers for the tremendous practical support given to the team.

Nick Poole
Managing Director
FAR Australia

Funding Acknowledgements
The Hyper Yielding Crops and High Rainfall Zone Farming Systems project teams would like to place on record their grateful thanks to the Grains Research & Development Corporation (GRDC) for its funding support for this event and featured projects.

What are these projects aiming to achieve and how did they originate?

HRZ Farming Systems

Over the past decade there has been a trend towards more cropping in the High Rainfall Zone (HRZ) but yields are typically 1-3 t/ha below water-limited yield potential for wheat and 0.5-1.5 t/ha for canola in an average season. This presents a significant opportunity to lift the profitability of cropping systems in the HRZ, defined in Western Australia as arable areas with annual rainfall above 450mm. This GRDC project was created to support growers to overcome major constraints, adopt superior long-season varieties and develop management packages to express superior yield potentials. In this project, DPIRD, CSIRO and FAR Australia have combined their expertise in farming systems, bio-economic modelling, disease management, and systems agronomy to work with growers to develop high production packages for the HRZ.

Over the three years of the project, the team will focus on supporting growers to increase the value of the cropping phase in the HRZ farming system by 10%. This will be done by addressing both crop yield potential and the gap between potential and realised yield in wheat and canola crops grown in the HRZ of the Albany and Esperance port zones.

In 2019 the project team ran workshops at Dandaragan, Green Range and Esperance with farmers and advisers to help define the key elements of the HRZ and R&D needs to support increased productivity and profit. Issues, opportunities and priority questions identified guided the establishment of the experimental program in 2020. Key priorities coming from these workshops included how to best manage agronomy when potential is increased with soil amelioration, how to lift production through a combination of early sowing, improved genotypes and appropriate agronomy in cereals, how to manage nutrition to target high yields in HRZ environments, and how to improve the harvest index (achieved yield from established biomass) in large and bulky HRZ crops.

The project team is also working closely with SEPWA and Stirlings to Coast Farmers who are running paddock-scale demonstration projects (under PROC-9175784). This provides regular engagement with growers and consultants and ensures promising results from small-plot trials are validated at a paddock scale using commercial machinery.

This project will deliver a better understanding of the yield potential of different combinations of germplasm (i.e. winter vs spring germplasm) and farming systems inputs, identify options to reduce the yield gap, and quantify the economic risks associated with potentially higher input farming systems. The intensively monitored field experiments and

paddock-scale demonstrations provide a focus for extension activities to improve grower knowledge and cropping aspirations. We are working with leading growers and consultants to develop guidelines about the profitability and risks of incorporating new agronomic practices and more diverse crop sequences into HRZ farming systems.

By working together, we can refine and transform HRZ farming systems towards increasing the average yield by 2t/ha in cereals and 1t/ha in canola (i.e. the five-year stretch target set by GRDC for the HRZ).

For more information on cereals contact James Rollason (james.rollason@faraustralia.com.au) or Nick Poole (nick.poole@faraustralia.com.au) from FAR Australia.
For more information on canola contact Jens Berger from CSIRO (jens.berger@csiro.au) or Jeremy Curry from DPIRD (jeremy.curry@dpird.wa.gov.au).

Hyper Yielding Crops

Hyper Yielding Crops (HYC) builds on the success of the GRDC's four-year Hyper Yielding Cereals Project in Tasmania which attracted a great deal of interest from mainland HRZ regions. The project demonstrated that increases in productivity could be achieved through sowing the right cultivars, at the right time and with effective implementation of appropriately tailored management strategies. The popularity of this project highlighted the need to advance a similar initiative nationally which would strive to push crop yield boundaries in high yield potential grain growing environments.

With input from national and international cereal breeders, growers, advisers and the wider industry, this project is working towards setting record yield targets as aspirational goals for growers of wheat, barley and canola.

In addition to the research centres, the project also includes a series of focus farms and innovative grower networks, which are geared to road-test the findings of experimental plot trials in paddock-scale trials. This is where in the extension phase of the project we are hoping to get you, the grower and adviser involved.

HYC project officers in each state (Dan Fay from Stirlings to Coast farming group here in the West) are working with innovative grower networks to set up paddock strip trials on growers' properties with assistance from the national extension lead Jon Midwood.

Another component of the research project is the HYC awards program.

The awards aim to benchmark the yield performance of growers' wheat paddocks and, ultimately, identify the agronomic management practices that help achieve high yields in variable on-farm conditions across the country. This season, HYC project officers are

seeking nominations for 50 wheat paddocks nationwide (about 10 paddocks per state) as part of the awards program.

For more details on the project contact:

Rachel Hamilton – HYC Communications and Events, FAR Australia (rachel.hamilton@faraustralia.com.au)
Nick Poole – HYC Project Leader, FAR Australia (nick.poole@faraustralia.com.au)
Jon Midwood - HYC extension coordinator, Techcrop (techcrop@bigpond.com)
Dan Fay, WA HYC Project Officer, Stirling to Coast Farmers, (dan.fay@scfarmers.org.au)

Optimising high rainfall zone cropping for profit in the Western and Southern Regions (DAW1903-008RMX)

2021 WA Cereal Research Programme

The research programme at this site has a focus on late April sowing. Two trials will be pursued that allow the research team to compare the economics of winter and spring wheat germplasm sown in the traditional ANZAC day sowing window.

Trial 1. April sown germplasm (winter vs spring) x management interaction trial

Cultivar: various

Objectives: To assess a comparison of early sown winter and spring wheat germplasm managed under different levels of management (Late April sown).

Individual objectives specific to the trial are:

- Assessing the phenology, dry matter production, yield and profitability of winter versus spring wheat sown in late April.
- To examine the effect of defoliation in winter and spring wheat on dry matter removed, final dry matter, phenology, grain yield and profitability.
- To compare the performance of feed and milling winter wheats sown in late April.

Trial 2. Wheat April sowing germplasm screening trial – winter and spring (not taken to yield).

Objectives: To assess elite breeders' lines for late April sowing opportunities.

Individual objectives specific to the trial are:

- Assessing the phenology, standing power, disease resistance of earlier generation winter and spring wheat candidates sown in the late-mid April sowing window.
- To select the promising candidates for inclusion in future agronomy studies that would be taken to yield.
- To compare the performance of feed and milling winter wheats.

Hyper Yielding Crops (FAR2004-002SAX)

2021 WA Barley Trials

Trial 1. HYC 1st Stage Screen

Objectives:

To examine the phenology, disease resistance and standing power of new barley germplasm established in the traditional late April/early May sowing window relative to current practice.

Individual objectives specific to the trial are:

- Evaluating the phenology response of new 2 and 6 row winter barley germplasm relative to current spring controls and new European spring cultivars.
- Evaluate foliar disease resistance profile and any viral responses.
- Evaluate plant type characteristics related to stand ability, row type, tillering capacity, and head retention.

Trial 2. HYC Elite Screen

Objectives: To examine the yield potential of new winter and spring germplasm grown under HYC Management packages against spring and winter controls in the traditional late April/early May sowing window.

Individual objectives specific to the trial are:

- Examining the yield potential of a new range of two and six row winter barleys never before tested in the Australian HRZ region.
- Determine Harvest Index and Biomass benchmarks in the HRZ under current best practice (on selected lines).
- Inform experimental direction for elite screening (HYC Elite Screen) and management considerations.

Trial 3. HYC G.E.M Trial series

Objectives: To assess the performance of winter and spring barley germplasm managed under four different management intensities (mid-April to early May sown) at two levels of fungicides.

Individual objectives specific to the trial are:

- Assessing the phenology, dry matter production, yield and profitability of current winter versus spring barley sown in April (early May if not possible).

- To examine the effect of defoliation in winter and spring barley on dry matter removed, final dry matter, phenology, grain yield and profitability.
- Determine why the harvest index higher of winter barley is lower than spring barley and whether that constraint can be removed.

Trial 4. HYC Disease Management germplasm interaction

Objectives: To develop profitable and sustainable approaches to disease management in HRZ barley.

Individual objectives specific to the trial are:

- Monitor the effectiveness of fluxapyroxad (Systiva) for early disease control in barley.
- To evaluate whether newer germplasm (improved resistance) or new fungicide chemistry allows a reduction in the number of fungicide applications whilst increasing barley profit (reducing the number of fungicides is seen as a key measure for slowing down resistance development in cropping systems.

Trial 5. HYC PGR x harvest date interaction

Cultivars: Planet and Buff

Objectives: To assess the value of PGRs with delayed harvest in HRZ regions.

Individual objectives specific to the trial are:

- Most evaluations of PGRs conducted on trials looking at yield effects (HI prevention of lodging) rather than brackling. Are PGRs more beneficial when harvest is delayed in the HRZ in the prevention of brackling?
- Inform PGR use for subsequent seasons and the effect of PGRs on harvest index.
- Establish links with European trials and introduce ethepon.

Trial 6. Nutrition for Hyper Yielding Barley

Cultivar: RGT Planet (full disease protection and PGR input)

Objectives: To assess the value of higher nutrition input for barley.

Individual objectives specific to the trial are:

- Assess whether growers are currently under fertilising barley crops in the region and N requirements required to reach benchmarked PTQ limited yields within each region.

SOWING THE SEED FOR A BRIGHTER FUTURE

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