

RCSN Newsletter

News from the Western Regional Cropping Solutions Network



GRDC
GRAINS RESEARCH
& DEVELOPMENT
CORPORATION

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Julianne Hill, RCSN western region coordinator

While we are focused on the main grain business drivers of rainfall and agronomic management at this stage of the season, it is timely to reflect on GRDC's purpose to invest in RD&E to create enduring profitability for Australian grain growers.

GRDC Managing Director Dr Steve Jefferies told this year's combined RCSN meeting in March that grain growers need to get maximum returns from the Corporation's investments with commercial partners.

He said grower input and ideas were a major factor in GRDC's investment decision-making and new systems have been introduced for improved responsiveness, including fast-tracking promising R&D ideas.

GRDC has embarked on a new approach to doing business centered around a continuous investment cycle. This will provide greater responsiveness of investments, from planning through to delivery.

Steve stressed the importance of the GRDC being in a position to react to and address issues quickly and said the RCSN groups were a key platform to achieve that year-round.

Through its streamlined information management system, RCSN groups (and other growers, researchers and industry stakeholders) can now submit RD&E ideas online and track these through the analysis and planning pipeline to a project (if that occurs).

The RCSN groups are an integral part of GRDC's grower engagement and will also continue to feed issues and investment ideas to GRDC's Western Regional Panel through their meetings and 'open' meetings with the wider WA grain growing community.

The annual RCSN 'open' meetings are planned for each of WA's five grain receival port zones in July and August 2017, providing opportunities for all growers to have input to GRDC about the main issues affecting their crop production and profits.

They are a chance for WA growers to meet up with GRDC Western Regional Panel members and staff to talk about these issues and hear about where GRDC is investing levy payers' money.

Make sure you come along to one of these meetings - online registrations are open on the [RCSN website](#), or call me. I look forward to sharing a plate of bacon and eggs (or a snag in a bun) with you at one of the following venues:

Kwinana West port zone

Monday 17th July 2017 at 9am: Cunderdin

Monday 17th July at 3pm: Wongan Hills

Tuesday 18th July at 8am: Dalwallinu

Esperance port zone

Tuesday 25th July 2017 at 3pm: Cascades

Wednesday 26th July 2017 at 7am: Salmon Gums

Thursday 27th July 2017 at 3pm: Hopetoun



Kwinana East port zone

Tuesday 8th August 2017 at 9am: Narembeen
Tuesday 8th August 2017 at 3pm: Southern Cross
Wednesday 9th August 2017 at 9am: Nungarin

Albany port zone

Monday 14th August 2017 at 1pm: Hyden
Tuesday 15th August 2017 at 9am: Woodanilling
Tuesday 15th August 2017 at 3pm: Boyup Brook

Geraldton port zone

Thursday 24th August 2017 at 9am: Mullewa
Thursday 24th August 2017 at 2pm: Three Springs.

A range of RCSN-initiated RD&E projects, final reports and information about RCSN activities is summarised below, along with some links to timely agronomy and management information. Further details can also be found on the [RCSN's dedicated website](#) and through the [GRDC's Online Farm Trials \(OFT\) website](#).

There is also a new suite of RCSN-initiated case study resources that can be found on the [RCSN website](#).

Good luck with seeding this year and I hope you find this edition of the RCSN newsletter interesting. I'd love it if you forwarded it to friends, or you can contact me for news and information about the western region RCSNs - Julianne Hill: 0447 261 607, [email](#), or [Twitter](#).

Around the RCSN Port Zones



Esperance port zone RCSN - Assessing options for very early sowing

The Esperance port zone RCSN initiated trials to investigate very early sowing in 2015 and 2016 on the back of some evidence that, in the right season, there may be limited downside in crop yields.

Two sites were chosen to ensure frost exposure, with plots sown across a wide elevation from the top to bottom of the landscape. The performance of wheat, barley, oats and canola was evaluated by project leader Craig Brown, of Synergy Consulting WA.

The time of sowing used in the 2016 trials was April 20 (early) and May 20 (typical) and a key finding was that all crops sown at the higher elevation - at both sites - produced higher yields when sown on the earlier date. This was due to less frost damage higher in the landscape.

Craig says some wheat varieties had less frost damage than others and barley performed slightly better than wheat under frost pressure in both years.

He says more trials are needed to further explore the interactions between very early sowing, crop type, crop variety and elevation.

It is advised to match time of sowing with the right crop type and variety as part of a frost risk management plan.

These trials to date also reiterate previous research and experience that has found it is better to sow wheat early when there are germination opportunities, rather than hold off solely to avoid frost risk - as crops sown later can be hit as hard by frost as those sown early.

More information about this project is available from RCSN coordinator Julianne Hill.

CAPTION: Synergy Consulting WA adviser Craig Brown carried out a very early sowing trial in 2016 initiated by the Esperance port zone RCSN. PHOTO: GRDC

Kwinana West port zone RCSN - Barley trumps wheat in time of sowing trials, but oats on top

ConsultAg advisers Geoff Fosbery and Brad Joyce undertook time of sowing trials at Kellerberrin and Coorow last year, as this issue has been given high priority status by the Kwinana West RCSN group.

They evaluated sowing dates of April 7, April 21 and May 13 for a range of wheat and barley varieties.

Geoff says unfortunately the Coorow site (moderately low in the landscape) was hit by 30 frosts after July 15 and at the Kellerberrin site, there were 23 frosts after August 1. This had a big impact on final yields, as each time of sowing had a frost event occurring at flowering.

At the Kellerberrin site, the long season barley (Flinders Φ) sown on April 7 out-yielded wheat sown on that date. Longer season wheats (including Magenta Φ) had the best yield results when sown on April 21.

At Coorow, wheat and barley yields were lowest at the earliest sowing, but yields were similar for the late-April and May sowing dates.

Geoff says mid-season oats (including Bannister Φ) showed better ability to tolerate frost, yielding well when sown in early April at both sites.

He says if sowing a cereal in early April, these trials suggested a long season oat variety would be better than other cereals in some situations.

For mid-April sowing of cereals, Geoff says the trials indicated a longer season barley would perform well compared to wheat. And, for early May cereal sowing, he says longer season wheat and barley varieties would appear to be good options.

He says the trials highlighted that in the coldest winter conditions experienced at the two sites since 1961, if sowing any currently available wheats before April 20, there are risks of yield losses at these latitudes. It might be better to sow longer season barley that is potentially higher yielding and potentially will have better returns, according to Geoff.

More information about this project is available from RCSN coordinator Julianne Hill.

CAPTION: Time of sowing trials in the Kwinana West port zone were badly frost affected in 2016. PHOTO: Evan Collis Photography



Geraldton port zone RCSN - Time of sowing evaluated in the north

In the northern agricultural region, time of sowing trials initiated by this RCSN group were carried out near Binu in 2016 by the Northern Agri Group.

Outgoing group chairman Karl Suckling says early sowing of wheat in this area in recent years has potentially been getting too early - on the back of a trend to warmer winter seasonal conditions.

But, unfortunately for this trial, last year was the coolest winter experienced in the region for 20 years and the site also had below average rainfall.

The aim was to start sowing in late April, but the first germination opportunity was on May 9 and the second time of sowing used was June 6 (typically late for this region).

Results showed average wheat yields in the trial were 0.65t/ha higher at the earlier time of sowing date, equating to a 30kg/ha/day loss for every day that sowing was delayed until June 6. There were also significant variety differences in yields.

Karl says more trials are needed in this area to further evaluate early sowing, especially the effects of hot conditions when this practice is used.

More information about this project is available from RCSN coordinator Julianne Hill.

CAPTION: Northern Agri Group outgoing chairman Karl Suckling explained findings from 2016 Binu time of sowing trials to the RCSN combined meeting in March. PHOTO: GRDC

Kwinana East port zone RCSN - Cereal varieties and nutrition regimes tested in local conditions

Reducing risks associated with crop variety selection has been identified as a big priority for this RCSN group.

Members want a better understanding of variety performance under a range of management practices.

This led to a 2016 RCSN-initiated project coordinated by the Merredin and Districts Farm Improvement Group (MADFIG), with support from local growers and the Living Farm grower group.

The aim was to generate locally-specific data to complement information from National Variety Trials (NVT) that is based on more 'standardised' testing.

The project evaluated 12 wheat and five barley varieties with four nutrient management scenarios indicative of what would commonly occur in response to local seasonal conditions or budget restrictions.

Key findings included:

- Higher fertiliser rates lifted average wheat and barley yields by up to 1.1t/ha
- Several wheat and barley varieties performed better than others
- Frost damage was minimal for all varieties
- Average wheat protein was low at 7.8 per cent.

More information about this project is available from RCSN coordinator Julianne Hill.

CAPTION: A range of cereal varieties commonly used in the Kwinana East port zone were evaluated for agronomic and yield performance in 2016 with GRDC investment. PHOTO: GRDC



Albany port zone RCSN - Soil compaction tactics on trial

Uncovering the best tactics to combat soil compaction in the Albany port zone is the aim of research being carried out by local grain growers, advisers and researchers from the Department of Agriculture and Food WA (DAFWA) - through the GRDC's Soil Constraints West Initiative.

DAFWA has identified the south coast region as having good potential for deep ripping to help ameliorate subsoil compaction and improve soil health.

This is also a priority issue identified by the Albany port zone RCSN group, which initiated GRDC investment into a field demonstration for 2017.

This project is being carried out by DAFWA, consultancy group agVivo and Revell Science and complements a similar project in the Kwinana West port zone that was initiated by that region's RCSN group.

Two trial sites have been set up in the Albany port zone and two sites in the Kwinana West port zone to compare a range of ripping techniques. These include combinations of deep ripping, inclusion plates, deep mixing with a rotary spader and mouldboard ploughing. The research will also look at the benefits of using controlled traffic farming (CTF) with these options.

The aim is to deliver clearer indications to growers about the practicalities, economics, successes and pitfalls of various management options to address soil compaction.

A farm tour of the Albany zone trial sites is planned for this season, along with production of case studies and videos from growers collaborating in the research. More information will come from the RCSN groups later in the year.

CAPTION: Reece Curwen, of South Stirling, is involved in trials assessing soil compaction tactics, which are a high priority for the RCSN Albany port zone group. PHOTO: GRDC

Hot topics for April

Consider crop grazing to boost whole-farm profits

Crop grazing in late autumn and early winter can be a useful tactic to expand crop area and/or increase livestock numbers to boost whole farm profits.

Grazing of early-sown crops can also have positive spin-offs in helping to mitigate the effects of frost and disease in some situations and increase availability of affordable feed for stock in early winter.



Research through the GRDC's Grain & Graze 2 and 3 projects from 2010 to 2016 has found crop grazing is most profitable when:

- A higher stocking rate used is across the whole farm
- Some crops are sown early
- Crops are grazed with highly responsive livestock
- Crop yield penalties are minimised.

Farm adviser and Grain & Graze 2 project leader Philip Barrett-Lennard, of agVivo, outlines some key tips and tools for successful crop grazing in a new GRDC 'Know More' video called '*Crop grazing tips for WA mixed growers*', available via [this link](#).

This is a short, simple guide to setting up and managing a crop grazing system specifically in WA conditions and highlights the potential agronomic and economic gains from using this tactic.

CAPTION: agVivo adviser and GRDC Grain & Graze 2 project leader Philip Barrett-Lennard features in a new GRDC 'Know More' video explaining how to reap the best rewards from crop grazing in WA. It can be found via [this link](#). PHOTO: GRDC



Get set for cereal disease management

Growers are encouraged to factor cereal disease control measures into plans for this season.

DAFWA advises that these can include the use of seed dressings or in-furrow fungicides at seeding, or foliar fungicides later in the growing season - depending on whether risks eventuate.

Fungicide-based seed dressing and in-furrow products (including some that are newly registered) can suppress early onset of cereal

foliar diseases, such as powdery mildew, leaf or stripe rust, net blotches and fungal root rots, such as pythium, rhizoctonia, pythium, rhizoctonia and take-all.

These contain one or more active ingredients and choices are best made with consideration of the range of diseases that threaten the crop, type of crop and variety. It is also advisable to alternate fungicide active ingredients used at seeding with foliar products/actives later in the season.

GRDC recommends to always consult product labels for fungicide registrations, rates and timing.

DAFWA offers updates and crop disease forecasts on their [website](#).

These can help to re-assess disease risks when planning fungicide and insecticide tactics.

CAPTION: To see a short video of DAFWA research officer Geoff Thomas discussing cereal foliar disease risks, such as wheat powdery mildew (pictured) for 2017, follow [this link](#).

Plan now to minimise frost risk

WA growers are being encouraged to install temperature monitors/loggers (such as Tiny Tags and iButtons) to get a more in-depth understating of frost incidence in frost-prone paddocks this season - and for future years.

Researchers say data from these devices can be highly valuable for whole-year frost risk management planning, especially in monitoring trends of temperature variability at points across a paddock and/or frost-prone landscapes for comparison with crop yield results.



Previous research has found temperatures can vary by between 2-4°C between the soil and plant canopy levels, highlighting the importance of placing temperature monitors at canopy height.

These should be adjusted through the season to ensure they can provide the most relevant information about what the crop has been exposed to, particularly during vulnerable flowering stages.

Temperature change is even greater across a landscape. Bureau of Meteorology (BoM) or DAFWA on-line weather stations (or thermometers on the veranda/fenceline) are often measured a long way from a paddock and at a different elevation in the landscape.

These BoM and DAFWA temperature measurements are also collected in a Stevenson screen and 1.5m off the ground. It is known that during a frost event (low winds) that stagnant air can affect these measurements, making them warmer than the surrounding air, especially at canopy height.

Growers collecting temperature data with an exposed sensor at head height will get a colder reading (by about 1-2°C) and a more accurate reading of what the vulnerable parts of the crop have experienced.

Because growers are interested in temperatures during the night and the pre-dawn period, there is no need for Stevenson screen for the temperature loggers.

Data can be downloaded after a severe frost event to understand single or a series of incidences that the crop has been exposed to. Using their own knowledge, field inspection and the resources of the GRDC, growers can better understand the likelihood of damage and make decisions about how to inspect and potentially manage frost affected crops.

As part of GRDC's investment in the multi-disciplinary National Frost Initiative, researchers at the University of Western Australia (UWA) are this season further investigating vertical temperature profiles in-crop and how these change as plants mature and the canopy develops. Part of this work will help growers determine the best placement of temperature monitors in crops in future.

To see how WA grower Paul Hicks is using temperature monitors on his property, follow [this link](#) and for the latest on the UWA research, click [here](#).

GRDC has comprehensive information about tactics to manage spring frosts and links to useful resources are available in its [Tips and Tactics publication Managing Frost Risk](#).

Frost damage identification aids are available in the GRDC's suite of GrowNotes™ publications on the [GRDC website](#).

CAPTION: Tiny temperature monitors, such as that used by Nyabing grower Fiona Hoble in 2014, can be useful to assess conditions at canopy height for frost monitoring and risk management planning. PHOTO: GRDC

Keep an eye out for...

For a suite of new **RCSN-initiated case study resources**, click [here](#).

For the latest Western region **Fact Sheets** click [here](#).

To visit the GRDC **YouTube** channel, click [here](#).

For more information about the RCSNs in the Western region, contact Julianne Hill, RCSN Western coordinator

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