

RCSN Newsletter

News from the Western Regional Cropping Solutions Network



www.grdc.com.au

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Julianne Hill, RCSN western region coordinator

The Regional Cropping Solutions Network (RCSN) groups are getting down to business this month, discussing ideas and opportunities for grains RD&E that are specific to their port zones in conjunction with growers at a series of 'open' local forums.

These local meetings help GRDC shape future investments to deliver sustained value and profitability to WA grower levy payers.

All grain producers are encouraged to attend an open forum in their port zone, where they can meet up with GRDC Western Regional Panel and RCSN members and staff, provide feedback on RD&E issues and gaps and hear about GRDC projects and initiatives. I encourage you to register and find out more about these events at www.rcsn.net.au.

In this newsletter, we take a look at some of GRDC's existing investments that are addressing agronomy, farming systems, soils, nutrition, pests, weeds and disease RD&E issues identified by the Western Regional Panel, RCSN groups and WA grain growers as high priorities for WA. Included are links to further information and contacts that might be particularly useful in each port zone.

More details about RCSN-initiated GRDC projects in the western region can be found on the [RCSN website](#), or by checking the online [farm trials database](#).

I hope you manage to get away from the farm for a few days in July and I really look forward to shouting you a meal and a drink at one of the 14 RCSN open local forums this winter. Feel free to contact me at any time - Julianne Hill: 0447 261 607, [email](#), or [Twitter](#).

Photo caption: RCSN coordinator Julianne Hill



Around the port zones



Kwinana West RCSN - Nutrition on the menu for discussion

Crop nutrition and nutrient efficiency, micronutrient sources and getting a better handle on the need for annual fertiliser 'top-ups' are among the top-ranked GRDC priorities in this port zone.

Kwinana West RCSN members have identified that, for their soil types and growing conditions, there is a need for more RD&E into:

- Potassium (K) testing methods, accuracy and crop response
- In-season nitrogen (N) decisions
- Crop/variety nutrient use efficiency
- Micronutrient sources and efficiency
- Phosphorus (P) and manganese (Mn) use.

These issues are being addressed by GRDC through its investments in a range of crop nutrition projects in the western region.

Research is continuing to build on almost 10 years of work carried out through the GRDC More Profit from Crop Nutrition (MPCN) project, which finished last month.

Northam-based Department of Primary Industries and Regional Development (DPIRD) - formerly DAFWA - research officer Craig Scanlan worked in two of the five MPCN research projects in the western region.

These investigated: micronutrient sources and efficiency; interactions between macronutrients and soil pH; the value of fixed N; N response in barley; and the value of K to crops.

Some of the key outcomes particularly relevant to Kwinana West growers include:

- Lime application to acid soils increases soil P availability
- Subsoil K has an influence on yield response to fertiliser K when topsoil K levels are low
- There are benefits in crop tissue testing for micronutrient levels
- Potassium applied to K-deficient soils may have potential to boost wheat yields in crops suffering early drought conditions, frost or salinity
- About 80 per cent of WA soils have sufficient P levels.

For more information about these GRDC investments, follow [this link](#) and [this link](#), or contact Craig Scanlan, DPIRD Northam, via email craig.scanlan@agric.wa.gov.au.

Craig presented regionally-specific findings from his crop nutrition research during the Kwinana West RCSN open forum meetings at Cunderdin, Wongan Hills and Dalwallinu earlier this month.

Photo caption: Crop nutrition research being carried out with GRDC investment includes nitrogen fertiliser trials in the Kwinana West port zone, led by DPIRD research officer Craig Scanlan. **PHOTO:** GRDC

Esperance port zone RCSN - Hard-to-kill weeds a high priority

Weed management is a major issue impacting on grower productivity in the Esperance region.

The local RCSN group has flagged a need for more research into sustainable use of (and finding alternatives to) glyphosate and summer weed management.

Group members are particularly keen to find strategies that target hard to control broadleaf weeds, including statice (*Limonium sinuatum*), marshmallow (*Althaea officinalis*), flaxleaf fleabane (*Conyza bonariensis*) and species that have a high level of dormancy.

GRDC has major national and WA-based investments in weeds research and management, including through the Australian Herbicide Resistance Initiative (AHRI), based at The University of Western Australia, and industry-led WeedSmart program.

As part of efforts to help WA growers better understand and manage glyphosate resistance, GRDC facilitated a 'learning group' in Esperance made up of regionally-based advisers, grower groups and DAFWA (now DPIRD) researchers.

In 2012 it coordinated trials into using a single knockdown or a mix of a knockdown and residual herbicide as alternatives to glyphosate for annual ryegrass control on fencelines.

A key finding was that tank mixes of a residual and knockdown product, as part of an integrated weed management (IWM) strategy, would provide the best annual ryegrass control. But each option had limitations in regards to weed germination, herbicide temperature dependence and/or product solubility.

For more information about this project see the following link to a [GroundCover issue](#).

Another useful resource is the [GRDC Glyphosate Resistance Fact Sheet](#).

**Note, the Esperance RCSN open forum meetings will be held at:*

- Cascades Hall, July 25 at 3pm
- Salmon Gums Community Centre, July 26 at 7am
- Redman's Springdale Road shearing shed, July 27 at 3pm.

Photo caption: Managing annual ryegrass, pictured, and other weed resistance to glyphosate will be discussed at the Esperance RCSN open meetings this month. **PHOTO:** GRDC





Kwinana East port zone RCSN - Cereal diseases take their toll in the east

Cereal diseases, such as crown rot (predominately caused by the fungus *Fusarium pseudograminearum*), and root diseases/pests, such as rhizoctonia and nematodes, regularly take a heavy toll on crop yields in the eastern grainbelt.

The Kwinana East RCSN group has identified these issues as R&D priorities for the region.

In particular, members are keen to find out more about tactics to address crown rot, nematode impacts on canola (and management options) and how to deal with increases of rhizoctonia that can occur after liming.

In six inoculated trials at Merredin and Wongan Hills in 2014-16, DPIRD research officer Daniel Hüberli found barley yield losses from crown rot infection ranged from 0 to 1.85 tonnes per hectare (0-59 per cent) across a range of varieties and from 0 to 1.11t/ha (0-42 per cent) for a range of wheat varieties.

He says cereal crops in the eastern grainbelt can be particularly affected by this disease in years with dry conditions during grain filling stage.

Daniel's trials, carried out with GRDC investment, confirmed that variety choice under high crown rot disease pressure can have a significant impact on yield.

For wheat, across the six trials in 2014-16, he says the best performing varieties under high crown rot inoculum was Emu Rock[®]. For barley, it was Litmus[®] and La Trobe[®].

His full crown rot trial results are outlined in a [2017 GRDC Grains Research Update paper](#) and were presented at GRDC's Grains Research Update events in Perth and Merredin earlier in the year.

GRDC has a range of investments looking at issues associated with cereal foliar and root diseases in the western region, including through the collaborative Centre for Crop and Disease Management (CCDM) based at Curtin University.

CCDM co-director (Agronomy and Agribusiness) Mark Gibberd plans to further discuss foliar disease, management and fungicide resistance issues of particular relevance to growers in this zone with Kwinana East RCSN group members. For more information contact Megan Jones, CCDM, megan.d.jones@curtin.edu.au

**Note, the Kwinana East RCSN open forums will be held at:*

- The Hyden Hotel, August 7 at 12 noon
- Narembeen - August 8, at 9am
- Southern Cross - August 8, at 3pm
- The Nungarin Recreation Centre, August 9 at 9am

Photo caption: DPIRD research officer Daniel Hüberli is investigating crown rot in the Kwinana East port zone.
PHOTO: GRDC

Albany port zone - Tillage tactics to boost soil water

Strategies to tackle soil constraints are among the highest RD&E issues for the Albany port zone RCSN group.

It has flagged opportunities for more research into one-off strategic tillage options for the region's water repellent soils, especially gravels.

Albany-based DPIRD soil research officer Glenn McDonald is working on this issue through the 'Soils Constraints - West' group of projects, in which GRDC is a major investor.

He says deep soil amelioration options can be expensive and the big question facing many growers in the Albany port zone is whether to 'dig or spray' - using tillage or soil wetters - to boost crop performance.

Glenn's research covers a range of soil types and aims to address local management and agronomy issues associated with various tillage systems, including: water repellence responses; frost interaction with ploughing; practicalities of deep ripping and deep delving; on-row versus off-row seeding; and return on investment on lime use.



Some key findings to date from replicated 2015 and 2016 trials on a loamy gravel site at Kojonup include:

- Mouldboard ploughing can significantly reduce water repellence (to zero in 2015)
- One-way ploughing can reduce soil water repellence (by 43 per cent in 2015)
- Tillage can increase barley and wheat yields compared to soil wetters (in 2015 and 2016).

Glenn says the strategic one-way and mouldboard ploughing tillage systems used at the Kojonup site provided a more consistent yield response than using wetters across the two years of the trials.

He is coordinating a 'Looking deeper into soils' tour that leaves Perth on July 24 and travels through Wickiepin, Tambellup, Ravensthorpe, Esperance and Corrigin.

This will include farm visits to see a wide range of soil amelioration options being used on different soil types.

More information about the tour, locations, costs and how to register is available from Glenn, who will also be at the Albany port zone RCSN meetings. He can be contacted on: 08 8992 8524 or glenn.mcdonald@agric.wa.gov.au

**Note, RCSN Albany port zone open meetings are scheduled for:*

- *Hyden Hotel, August 7 at 12 noon*
- *Woodanilling Tavern, August 15 at 9am*
- *The Reid property 'Kilamarup' at Boyup Brook, August 15 at 3pm.*

Photo caption: DPIRD soil scientist Dr Stephen Davies leads GRDC research into dealing with water repellence (and other constraints) affecting WA soils and that will be discussed at the Albany port zone RCSN open forums. He outlines some key outcomes from this work in a new GRDC 'Know More' video that can be seen via [this link](#).



Geraldton port zone RCSN - Producing more crop per drop

Members of the Geraldton port zone RCSN have consistently identified issues associated with early time of sowing as big priorities for grain growers across this region.

The group has advised there is value in RD&E into: variety choice and coleoptile lengths; seeding rates; early crop emergence and establishment; pre-emergent weed management; nutrition; canopy and stubble cover; deep ripping to improve plant water productivity; and crop heat tolerance.

GRDC has a range of investments in pre-breeding, agronomy and farming systems that are further exploring many of these issues in the Geraldton port zone and across the western region.

For example, a long-term research project is seeking to validate and deliver to breeders genes with potential to increase the length of the coleoptile - a protective sheath that encloses the shoot tip and first leaves of wheat.

Seed which germinate with long coleoptiles can be sown deeper to make use of residual soil moisture left over from summer rains. Hence plants with long coleoptiles are potentially better suited to capture yield benefits associated with early sowing than plants with shorter coleoptiles.

Wheat geneticist Greg Rebetzke leads this work for CSIRO Agriculture and Food, with GRDC investment, and will be on-hand at the RCSN forums in the Geraldton port zone to outline latest findings.

He says the project is focused on delivery of wheat plant water productivity, or increasing the amount of 'crop per drop' so growers can get better mileage out of precious rainfall.

The CSIRO researchers have identified alternative dwarfing genes that could reduce crop stature, without reducing coleoptile length and early growth, and a gene that actively promotes coleoptile length.

Dr Rebetzke says these genes allow the wheat plant to remain short, so the benefits of reduced lodging and improved N uptake and use would be continued - but without compromising coleoptile length and early leaf area development.

He says plants with the desired combination of genes have been passed on to wheat breeders to validate in their own programs and then use in development of new long coleoptile varieties.

For more information about this research, contact Dr Rebetzke on: 0429 994 226 or email greg.rebetzke@csiro.au

**Note, the Geraldton RCSN open forums will be held at:*

- *Mullewa Sports Club, August 24 at 9am (followed by BBQ lunch)*
- *Three Springs Barracks Motel, August 24 at 2pm (followed by dinner)*

Photo caption: CSIRO wheat geneticist Greg Rebetzke is leading research with GRDC investment focusing on boosting plant water productivity - or increasing the amount of 'crop per drop'. **Photo:** GRDC

Hot Topics

Growers to gather for national summit in Perth

GRDC managing director Steve Jefferies plans to speak at the Grower Group Alliance (GGA) Annual Forum and National Grower Group Summit, to be held in Perth on August 17-18.

Titled 'Growing Expectations', this GRDC-supported event is aimed at discussing extension and supply chain opportunities for Australian growers.

Other presenters include Australian Farm Institute general manager for research, Richard Heath, and New Zealand Red Meat Profit Partnership project manager for extension design, Richard Fitzgerald.

Also on the agenda are presentations about investment trends in RD&E, innovation and adoption across the agricultural industry and how growers and grower groups can continue to build on partnerships with government and private companies in this space.

The forum is scheduled to be held at the Pan Pacific Perth Hotel and registrations/more information are available at: gga.org.au, or contact Megan Cechner, GGA, on 08 6180 5759, mcechner@gga.org.au

Wheels turn for CTF conference

GRDC is supporting the upcoming National Controlled Traffic Farming Conference, scheduled to be held in Perth at the Novotel Perth Langley Hotel on August 22-23.

The event program includes sessions about implementing CTF systems - the myths and challenges - using CTF tactics on-farm, deep ripping with CTF and nutrient implications in CTF systems.

This event is a collaborative effort between GRDC, the Australian Controlled Traffic Farmers Association (ACTFA), Western Australian No-Tillage Farmers Association (WANTFA) and DPIRD. It will be followed by a two-day tour through the WA grainbelt.

For more information and to register, visit the ACTFA conference website by following [this link](#) or contact Graeme Currie on 0427 223 395.

Accessing resources for a challenging season

DPIRD (formerly DAFWA) is liaising closely with agricultural businesses, consultants, grower groups, farming organisations and regional communities to ensure appropriate support is provided to farmers across WA due to the challenging 2017 growing season.

It has advised that its website will be updated over coming months to provide timely and relevant advice, tools and networks as the season progresses.

This includes links to: climate/weather tools; agronomic information; livestock information; and an events calendar for key industry gatherings.

For more information follow this [link](#).

Keep an eye out for...

To visit the GRDC **Facebook** page, 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

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