

GRDC’s Esperance port zone Regional Cropping Solutions Network (RCSN) held two Open Forums in July 2019. The meetings were held at Ravensthorpe Entertainment Centre (30 July at 8am) and Grass Patch Hall (30 July at 4pm).

A total of 48 guests attended the two Open Forums. Members of the general public were able to register for the Open Forums at the RCSN website www.rcsn.net.au and could submit an issue/idea should they be unable to attend.

Those presenting across the forums included:

- Roberto Busi (AHRI) - A “Focus paddock” study to detect early herbicide resistance and maximize the efficacy of new herbicide-based solutions
- Ed Riggall (AgPro Management) - Grain and Graze titbits; Pasture management; Energy (ME) in the grain you have on hand; Forward planning for 2020 (Ravensthorpe only)
- Craig Brown (Craig Brown Consulting/Synergy) - Weed management and setting up for 2020; Fertilizer options for 2019
- Dr Fran Lopez-Ruiz (CCDM) - Net blotch, resistance & barley disease management (Grass Patch only)

GRDC staff spoke on GRDC investments; and most Esperance port zone RCSN members also attended one of the Open Forums. Online GroupMap technology was used to capture audience input. A key part of the Open Forum was the opportunity for participants to share the top issues affecting their profitability. The aim of these discussions was to provide growers with direct input into the analysis of current local priorities affecting productivity and profitability to assist in the discussions relating to future projects by GRDC’s RCSN and by GRDC’s Western Panel and GRDC staff.

A number of shorter term, smaller RCSN initiated projects have been put on the ground in the Kwinana West port zone since 2011. Final reports are available online at the Online Farm Trials website, www.farmtrials.com.au or on www.rcsn.net.au.

All issues raised at the Open Forums at Ravensthorpe and Grass Patch were discussed by the RCSN members at their meeting held on 31st July in Esperance. The RCSN also added further issues after gaps were identified. All issues were ranked according to five main factors: Does it impact on grower’s profitability? What area is affected by the issue? How frequently does the issue occur? If work was conducted on the issue, would it deliver more value to growers? Is the issue something that we can effect change upon?

Table 1: Summary of areas of interest raised at the Open Forums at Ravensthorpe (RA) & Grass Patch (GP); or by RCSN members

Areas of interest raised at Esperance port zone Open Forums and RCSN members	Expanded areas of interest from Open Forums and RCSN members	RCSN member feedback from RCSN member meeting and further action
<i>RA, GP, RCSN - Agronomic packages (demonstrations and benchmarking) for rotation crops and legumes across the zone</i>	<i>Agronomic package to successfully grow legumes. Pulse crops are starting to become seriously profitable and more support needed to fully understand herbicide and fungicide strategies. Legume research for new markets, agronomy packages for legumes to expand area grown in WA, particularly crop safety, crop protection, and nutrition to successfully grow profitable legumes (grain and feed legumes. Like to see more thorough bench marking of legumes in a whole farming system over a whole rotation, not just short term profitability. Comparison of legume rhizobia inoculant choice. Summer legumes for high rainfall sandplain</i>	<i>Ranked highly by RCSN members at their member meeting. The RCSN identified this as an issue impacting on profitability and further developed some aspects of this issue.</i>
Glyphosate carryover	Many growers are being implicated in MRL breaches during testing even when they have not applied glyphosate over the barley crop.....source is potentially from canola desiccation. Are we getting measured the same as the rest of the world? Is Australia on Codex? Can we trust the testing results? Is there potential that they are getting false positives from the lab? Maybe they test what glyphosate breaks down to and this is getting confused with another substrate/product	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC. The RCSN identified that there could be further extension occur in this space, including from Nigel Metz’s work to see if we can better understand the issue.
<i>GP, RA, RCSN - Nutrition and updated response curves for maximum production on ameliorated soils - pushing the production</i>	<i>Effectiveness of banding vs foliar for trace element application. Return on investment, best practice, type of product for Zn, Mn, Cu. Phosphorous that has been left behind after 2 poor years such as those experienced currently. How much is left and what has been bound to the soil. Boron toxicity - varieties, strategies etc. High rate potash applications - does this have better long term benefits</i>	<i>Ranked highly by RCSN members at their member meeting. The RCSN identified this as an issue impacting on profitability and further developed some aspects of this issue. RCSN considered much of this to be extension, with some industry investment (CSBP) conducting local work already</i>

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<i>boundary, unlocking some nutrients</i>	<i>compared to regular applications every season. Also, how will K shift through the profile, and length of effect. What fertiliser package is needed after sub-soil constraints have been rectified to meet new yield potential after soil amelioration? NPK as well as micronutrients and sulphur</i>	
<i>Timing of glyphosate to crop top canola</i>	<i>Particular interest in looking at ryegrass timing and rates. Better guidelines on yield losses at different timings. Only a small amount of data through Nufarm and we don't know enough. How much are we losing?</i>	<i>Ranked highly by RCSN members at their member meeting. The RCSN identified this as an issue impacting on profitability and further developed some aspects of this issue.</i>
RA - Information on rain forecasting and deciles in the western region.	How do weather forecasters get the data and determine the season so quickly, and understand the risk of trusting forecasting? Possible workshops?? Climate Kelpie??	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current GRDC investment occurring in this space
GP, RCSN - Nitrogen management and measurement: matching N applications to protein.	In season deep N soil testing. Is this relevant to our soil types or just an East Coast centric practice? How to best utilise Nitrogen. How long does it hang around and how much rain is really needed? Benefits of spraying/streaming UAN vs spreading urea? Timing of application for best protein? Grain quality. Protein is too low and Black Sea competition is increasing. Can we put more N on and more often? Is there a way of reducing Spring risk with more N? How to calculate how much N has been leached.	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current large GRDC investment occurring in this space though the RCSN identified that there are some growers in the port zone who are working here
GP - Local application of variable rate technology - particularly weed seeker, green on green and fertiliser	Also variable rate seed to offer more competition in bad grass or poor soil areas. What is the ROI on this technology?	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current large GRDC investment occurring in this space
Fungicide and disease management	Protection of fungal disease on barley, what can we use? Worried about resistance issues as there are few new things coming through. What new fungicides are coming through? Some new ones but all mixes of the same groups. Not a strong understanding of the different groups. Lot of work has been done on this, maybe only gap is ramularia	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current large GRDC investment occurring in this space particularly with CCDM however the RCSN identified that further extension could occur
RA - Harvesting efficiency and cost of machinery investments	Do we need to re check the % of value of the crop lost each day after the crop is ripe for harvest? Revisiting old data on grain weight loss per day after maturity to help with management decisions	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time but did note that extension of past work in this space could occur
Storage of pulse grain particularly lentils in grain bags	How safe and how long can they be stored? Also tied in with marketing of lentils	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC
Growth regulators in high yielding cereals	Product choice, rate, mixes, timings and potential risk and upside. Results are variable though some are starting to use them	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC
GP - Ryegrass management	Herbicide resistance issues - ryegrass and marshmallow. Ryegrass surviving in kopi soils - little known about these soils. Finding it difficult to get a chemical that is effective	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue

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		at this time particularly as AHRI are working in this space with possible gap of kopi soils work
Improving crop germination and establishment	Getting best germination - seeding gear, wetter, in-row seeding, RA - Crop establishment - mechanical or wetting agent solutions in CTF systems to improve crop establishment and get moisture into the furrow in drying environment	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC There is current RCSN initiated investment in this space and this work could be further extended.
<i>RA, RCSN - Non-mechanical solutions to soil constraints</i>	<i>Safflower or alternate crop trials in soils where no mechanical amelioration seems possible, to utilize and provide pathways (for following crops) to the moisture that is available at depth. Benefits of tillage radish, safflower and other alternative crops on providing root pores and paths to the currently unused depths of our soil. Lucerne/safflower. More soil constraints workshops with soil pits to look at the wide range of soils we have and try to get an understanding of what we can do to improve yields? Sodic soil constraint improvements, do we need to look further than spreading gypsum? Banded K, pelleted gypsum.</i>	<i>Ranked highly by RCSN members at their member meeting. The RCSN identified this as an issue impacting on profitability and further developed some aspects of this issue.</i>
Rising water-table and salinity	Including hillside seeps; drainage to be included in any salinity work; brown manure summer crop followed by a winter crop to draw some moisture down. Are there deeper rooted plants pastures that can alleviate increase water draw down in the profile. How effective are deep drains and evaporation ponds with wet summers. Other strategies to alleviate the spread. Interested in combination of evaporative ponds and pastures/trees	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC
RA, GP, RCSN - How are we going to deal with the issue of snails at delivery?	Canola standard for snails dropped to 2 per half litre and over 10 is full rejected. It's going to be difficult to clean the snails out to this low level. Italian snails in peas; conical snails in canola. How to deliver canola to meet new CBH standards for conical snails, and strategies for mitigation	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current large GRDC investment occurring in this space as well as some RCSN initiated project work though there are still some issues outstanding
Research into excessive Lupin flower abortion in cold climates to make this break crop more profitable and appealing.	Is this issue purely climatic, or can this be helped with nutrition, breeding or other ways? Appears to be linked to temperature (or is it nutrition) and also affecting other pulses such as chickpeas, faba beans etc	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC and identified that further research needs to occur
RA - Variable deep ripping	Interest in on the go remote sensing, EM mapping for variable soil types. Real time sensing of soils. Duplex soils, variable depth to clay across a paddock.	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current GRDC investment occurring in this space
RA, GP, RCSN - Non-wetting soils management	Use of wetting agent in furrow. Would like to see a Plozza plough used in our region on non-wetting sands and gravels.....this is the one method or type of soil mixing that has not been trialled in our port zone/region. Seed placement - crop emergence issues for both non-wetting and hard setting clays	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current large GRDC investment occurring in this space

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African black beetle and slater control in barley and wheat	In 2019 particularly (timing and also placement of product underground in difficult and expensive). Slater control methods as we are using products that are not on label and slater numbers are increasing	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current GRDC investment occurring in this space though African black beetle was noted as a gap
GP - Inclusion plates to get lime and gypsum at depth -	Demonstrations in Esperance zone. Some work done at Curnows. Were inclusion plates included in this work? Hasn't been done at Holt Rock or elsewhere in the Esperance zone	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current large GRDC investment occurring in this space though the RCSN noted the gap in soils and locations
GP - Green peach aphid resistance	Remote monitoring of aphids and aphid spread virus, sticky traps are OK, but labour intensive, unreliable (they blow away) takes time to package and post them.....this comes at a cost \$\$\$ and time, surely this can be simplified. Many issues with Transform	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. GRDC is aware of this issue and working with the regulators as well as promoting good stewardship
Fertility packages on fully ameliorated soil types to understand thresholds in much higher potential yield scenarios.	Planet barley can yield more than 8t/ha. We need to set up with correct P, K & S before chasing N too far. Are there methods that can be used when ameliorating or incorporating products etc with high organic matter: manure, lucerne hay etc. Or do we just look at high levels of applied fertilisers?	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current large GRDC investment occurring in this space particularly around nutrition on ameliorated soils
RA - Improving harvest index - yield versus biomass	Growing biomass instead of grain yield on duplex soils, and no information on why this might be occurring? Growth regulators to manage height in canola to promote increased yield potential.	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC
Long coleoptiles in Winter wheat and barley	This will be a game changer for the adoption of early seeding at depth into marginal surface soil moisture, particularly the ability to seed at 10-15cm. This research is being done in spring wheats, needs to be extended to Winter cereals. Early vigour; erect leaves versus floppy leaves.	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current large GRDC investment occurring in this space particularly with CSIRO led by Greg Rebetzke
GP - Technology and data utilisation in agriculture - real time analysis, prescription maps on the go, satellite imagery - connectivity issues	How do we store and make this data reportable? One central storage location that feeds info via API's to each of our apps/programs?	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC
RA - Is there information available or tactics on getting better germination in wheat?	There are dormancy requirements for barley, and barley appears to be better at getting out of the ground. Varieties that germinate better with low rainfall? Dormancy requirements? Impact/potential opportunities to improve germ with storage type and length of storage?	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC
Methods and testing of banded/trenched organic matter/manure.	Massive yield responses in Victoria so we need to look at this	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC. The RCSN also

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		identified that David Hall is already working in this space at EDRS and extension of this work could occur
RA, RCSN - Stripper fronts: How to set them up; trash flow and weed control in this system	Study the pros and cons of stripper fronts and mid row sowing for moisture retention. Examining them in our environment & farming systems	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time particularly as other zones have already raised this as an issue
Automation - are we doing what we can to enable us to use it when it's available?		The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC
More work on shorter season varieties.	This will help with failed crops and some talk of having a brown manure through summer cropping and if moisture was still there, a 90 day cereal would also be a good weed control package by seeding July August.	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time.
RA, GP, RCSN - Encouraging and keeping people in agriculture and on farm	Can we get a specialised ag visa for foreign workers allowing them to return year on year? Encourage university students studying Ag to get out on the farm and see where the process starts for harvest or seeding. Well paid jobs and less physically intensive than most expect. Getting and retaining labor and raising awareness of opportunities, diversity of jobs available, skills, income, and nature of work to a wider audience to attract people to the industry. Target school or university students to educate about potential jobs in agriculture. How can we attract local workers rather than relying on overseas workers?	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC
Paddock Recording and Reporting	What leg do you have to stand on if you need good paddock records?	The RCSN identified this as an issue but did not further develop this issue at this time. However, the RCSN wanted to ensure that it continued to have presence within GRDC
RA, GP - Frost: Review and validate in our area of the work that has already been done.	Is there a way to predict frost with historic weather data and model it? Revisiting soil amelioration sites to look at their long term impacts on frost ie. Delving site from Brownley's. Is there anything that you can apply to the crop to reduce frost risk? Frost and heat stress - resistant varieties (frost in pulses - peas - has not received much attention)	Noted as an issue by RCSN members at their member meeting, however the RCSN did not further develop this issue at this time. There is current large GRDC investment occurring in this space. The RCSN identified that an update on the investment that has been occurring in this space could be extended
GP - Better mobile coverage as we use more data intensive apps and technology.	Currently difficult to use mapping, apps and other data collecting technologies in real time as often need to wait a few hours before you get back into mobile coverage. Build our own networks?	The RCSN identified this as an issue but did not further develop this issue at this time. Was considered to be outside of GRDC scope at this time

NB: ALL issues raised at the Open Forums as notes above will continue to have presence at the RCSN discussion table and will be forwarded to the GRDC Western Panel and GRDC for continued visibility that may feed into existing or future initiatives.

Thanks and Further Details. GRDC now have a Facebook page – www.facebook.com/theGRDC/ (like us!) as well as a dedicated RCSN website – www.rcsn.net.au. Follow us on Twitter @Julianne_Hill, or visit GRDC www.grdc.com.au. Thank you to everyone who attended the Open Forums and contributed to the detailed discussions. For further details, contact the RCSN Facilitator Julianne Hill on 0447 261 607 or email regionalcroppingsolutions@gmail.com