

GRDCs Geraldton port zone Regional Cropping Solutions Network (RCSN) held two Open Local Forums on 24 August 2017. The forums were held at the Mullewa Sports Club (9 am) and the Three Springs Barracks Motel (3 pm). A total of 94 guests attended the two Open Local Forums. Members of the general public were able to register for the Open Local 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 Open Local Forums included:

- Julia Easton and Charlie Thorn (GRDC): GRDC Update and investment into soils constraints
- Wayne Pluske (EQUIL): Subsoil constraints (Mullewa)
- Wayne Parker and Bindi Isbister (DPIRD): Compaction, CTF and more (Mullewa)
- Steve Davies (DPIRD): Non-wetting trials and results (Three Springs)

The following Regional Cropping Solutions Network initiated projects were also presented during the meeting series:

- Alana Hartley (Liebe): Best Bet Management of ameliorated non-wetting soils (Three Springs)
- Matt Hill (Esperance grower): Managing inputs using VRT (Three Springs)
- Jason Stokes (Chapman Valley grower): What rotations work on our farm (Mullewa)
- Grant Thompson (Crop Circle Consulting): Improving spray fallow techniques (Mullewa)

Also in attendance were Geraldton RCSN members. Online GroupMap technology was used to capture audience input. A key part of the Open Local Forums 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 which will assist GRDC’s RCSN; GRDC’s Western Panel and GRDC staff prioritise issues for further development. A number of projects have been put on the ground in the Geraldton port zone through the RCSNs since 2011. Final reports are available online at the Online Farm Trials website, www.farmtrials.com.au or by visiting www.rcsn.net.au

All issues raised at the Open Local Forums at Mullewa and Three Springs were discussed by the RCSN members at their meeting held on 25 August 2017 in Three Springs. The RCSN also added further issues after gaps were identified. All issues were ranked according to three main factors:

1. Is the idea/issue something that impacts on grower’s profitability?
2. If work was conducted on the issue, would it deliver more value to growers?
3. And is the issue something that we can effect change upon?

Table 1: Summary of areas of interest raised at the Mullewa (M) and Three Springs (TS).

Areas of interest raised (M = Mullewa; TS = Three Springs)	Expanded areas of interest by Open Local Forums attendees	RCSN member feedback from Closed meeting and further action
<i>Sclerotinia</i>	<i>TS - How to manage sclerotinia in canola and lupins, rotation options, M - Sclerotinia is an increasing due to tightening rotations, lupins and canola are carriers, are legume pastures hosts? Sclerotinia resistance currently in mustard in India, would like to see it in our canola here. Biggest issues is that we are reseeding paddocks with sclerotes with the seed. We need to work on eradicating or sterilising sclerotes</i>	<i>Ranked very highly by RCSN members at their closed member meeting. The RCSN identified this as an issue often impacting on profitability, but noted that much of this work is being covered by the current long term GRDC investment into canola disease, as well as other investments by Bayer and DPIRD. However, RCSN members ranked this highly and further developed some aspects of this issue especially around sources of infection, alternative control measures and options for sclerotinia in lupins.</i>
<i>Lupins</i>	<i>Seed size of lupins, does it have an effect on how deep we can sow lupins? Further work needed on managing weeds in lupins. Growers are struggling and there doesn't seem to be any new ideas or practices coming through. Clethodim is not working, dry sowing is very</i>	<i>Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue heavily impacting on profitability over many years, but noted that much of this work is being covered by the current GRDC investment into break</i>

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	<i>problematic. Lupins hugely important: for mixed farming business, more so than in an all-crop system</i>	<i>crop agronomy. However, RCSN members further developed some aspects of this issue especially around improving lupin establishment, wide row work, lupin size and weed control.</i>
<i>M, TS: Farm Profitability and business decision-making</i>	How to remain profitable with low prices and high inputs - more discussion about different business ideas and how successful farmers are doing well. M, TS - Farm business management decision making. TS - Improving profitability with low grain prices and high input costs- how do we make better business decisions. TS - Increasing skills in understanding farm business management, collaborating with university researchers	Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue heavily impacting on farming businesses in most years, however noted that private providers and PinG, plus others, can provide much of this information, though some GRDC investment has occurred in this space including the Farm Business Updates; and the RCSN case study booklet 'Farm business profitability' - project CIC00027.
<i>M, TS: Improving deeper sowing</i>	<i>How deep can we go with wheat and barley, what are the best techniques, ie press wheel pressure, fertiliser placement, seed dressings, how high do we need to increase seeding rate for effective plant establishment, what soil temperature is too low/high for deep sowing. Best grain type for sowing deep. We know that growers are sowing barley at 125mm deep. TS - Deep sowing of cereals to access moisture and improve establishment. Explore the extremes with the timings and available varieties as these are currently outside of available knowledge. There is a need to match this with the expected variability in season. TS - Establishment - very early crop establishment by split seeding depth and soil levels. TS -Deep sowing for early crop establishment, M - Very Early Crop Establishment and the ability to sow deeper. Confidence around very early sowing regarding frost, varieties.</i>	<i>Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue heavily impacting on farming businesses in most years with increasing frequency, and further developed this issue particular with identification that deeper sowing is an option for all times and seasons, with particular emphasis on early sowing, or sowing on marginal moisture</i>
<i>RCSN: Management of inverted soil</i>	Nutrition, chemicals, and levelling.	Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue however felt that much of this work was currently being undertaken with GRDC investments with DPIRD led by Steve Davies, David Hall, Bindi Isbister, Wayne Parker and others.
<i>M, TS: Compaction</i>	<i>Issue with crop not emerging on heavy soils and red loams...long time to wet up. Compaction - lime incorporation in the same pass and more information on soils</i>	<i>Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue impacting on profitability and noted that much of this work is being conducted under the GRDC Soils constraints investments. However, RCSN members ranked this highly and further developed some aspects of this issue.</i>
<i>M, TS: Deeper sowing/longer coleoptile</i>	Improving coleoptile length to access water. Short season long, long coleoptile wheat with yield comparable yield to mainstream varieties	Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an

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		issue impacting on profitability for this zone, and have highlighted the issue with GRDC.
<i>M, TS - Methods to help manage higher temperatures and variable rainfall</i>	<i>Seasonable variability preseason and within season. newer varieties. Higher temperatures and affect on crop development. How much does a 1 degree increase in daily average temperature increase the rate of development of my crop. Improving accuracy of yield predictions using probes, weather forecasts and models.</i>	<i>Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue heavily impacting on farm businesses in Northern and eastern wheatbelt areas, on all crop types, and further developed this issue</i>
<i>TS: Soil constraints</i>	Including non-wetting soils	Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue however felt that much of this work was currently being undertaken with GRDC investments with DPIRD led by Steve Davies.
<i>RCSN: Chaff lining</i>	<i>Lots of interest and questions. What happens if you graze paddocks that have been chaff lined? Will the chaff lines cause seeding problems eg block seeders, reduce crop establishment?</i>	<i>Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue and further developed this area with some comment that little research is occurring on what actually happens to the weed seeds. GRDC has some investment in this area with the project 'Assessment of some Harvest Weed seed options' PLN00013-B.</i>
<i>RCSN: Potassium</i>	We need to better understand the future big ticket nutrient better using testing methods that gives N like nutrient recommendations.	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time. A recent GRDC investment is addressing much of this question.
<i>RCSN, TS: EM and mapping layers to help better determine subsoil constraints</i>	Radiometric and other map layers available free from mining companies that correlate to subsoil properties in various regions. Which EM/radiometric layer best relates to subsoil constraints (acidity/sodicity) to produce variable rate gypsum and lime maps.	Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue but noted that there had been some investment in this area by GRDC and others including 'Quantification of soil testing versus EM38 and γ-ray spectrometry data for the Geraldton port zone', project code WES00001 & 'Understanding Map Layers for VRT', project code KDI00026.
<i>RCSN, M: Weed control and summer weeds</i>	Further expansion on Grant Thompsons work on button grass. Would like to see the options of the older chemistries and unregistered chemicals with new wheat varieties like Chief. Developing best management practices for fence-line spraying, options for reducing reliance on glyphosate. Weeds leaking from edges of paddock becoming harder to control. Summer spraying - how to control the ever expanding exotic summer weeds, becoming a huge problem in the low rainfall area e.g. Statice, button grass, western tarvine. Summer spraying - More	Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue impacting on profitability over most years, however noted that Bayer have indicated that further work may now be carried out on some of these weeds (eg Statice and Matricaria) after awareness was raised via these Local Forums. GRDC also currently has some investment in this area.

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	data/info on delta spraying windows. Summer weed management. Farmers are pushing delta t right out and still having good results. M Summer weeds - particularly reducing establishment, M Summer weed management particularly static and button grass. Continuation of GT work.	
<i>M, TS: Technology</i>	M - Current technology is underutilized - automation, robotics, camera, tech data not being used, which platform to use to combine it all, TS - Phone is full of apps.	Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue however felt that much of this was outside the scope of GRDC but wanted to ensure that it was raised as an issue within GRDC. GRDC currently also has an investment into emerging technologies.
<i>TS & M: Old chemistries</i>	Reliance on old chemistry...not losing it completely but losing general efficacy over time, however still a real use for them in low rainfall zones	Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue impacting on profitability in some years but noted that much of this work is outside the scope of the RCSN. It will be raised with GRDC.
<i>RCSN: Canola establishment systems</i>	Criteria for how deep hybrid vs OP seed can be sown to access moisture but still have good establishment, seed size by sowing depth interactions.	Ranked highly by RCSN members at their closed member meeting. The RCSN identified this as an issue impacting on profitability in some years but noted that much of this work is outside the scope of the RCSN. It will be raised with GRDC.
<i>RCSN: Sowing moisture management and knowledge</i>	Understanding how soil types dry after being sown in different temperatures when the pre-sowing moisture is known so that germination is maximised	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time. The RCSN will ensure that it is raised again as an issue with GRDC.
<i>RCSN: Fertiliser needs after liming/deep ripping etc</i>	Including Potash levels and other nutrients	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time as there is current GRDC investment occurring in this area with the soil constraints investment.
<i>RCSN: Integrated agronomy and farming systems research by 5 major soil groupings</i>		Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time.
<i>RCSN: Inter-row sowing with pastures and perennial grass</i>	ie sowing grain crops between rows opportunistically. lmi tolerant barley, Margeurita and Eliza serradella with lmi tolerance to put perennials to test.	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time
<i>M, TS: Seeding systems and machinery</i>	Identify the components of a seeding system that needs to be most flexible to improve the emergence of crop in poor sowing conditions. e.g. easy change to variable depth of sowing, grain size selection,	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time. GRDC have invested in part of this issue with the RCSN

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	coleoptile length. How to use the machinery technology that is available, how to integrate this best into the farming system. M - Machinery replacement schedule far too dear, only so much money available for machinery required, how do you make the choice, TS - Machinery replacement - how do we make the choice on what we replace and when?	project 'Machinery Replacement Options', project number KIS00003-A
<i>RCSN: Rotations</i>	Pastures as cover crops instead of using chemical fallow. Profitable legume in the rotation - pulse breeding for WA conditions, agronomy packages, understanding the economics of pulses by soil types, look at why pulses have taken off on east coast but not here - what system changes and price x yield do we need to have to enable increased adoption.	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time as there is current GRDC investment occurring in this area within the break crops investment.
<i>M, TS: Soil amelioration</i>	Identify the radiometric layer by location that correlates best with sub soil acidity and sodicity to develop a variable rate application map. Understanding deep ripping on red loams with acidic layers, don't focus on deep loams with no sub-soil chemical restraints. Demonstrate the best soil amelioration package for sodic, acid and non-wetting soils through specifically located omission trials. Incorporation of stubble/lime using different options such as speed tillers, top down. What's best? M, TS - Improving best management practices for incorporating lime to reduce pH on soils other than sand. Best management practices for incorporating lime. Effect of lime on water holding capacity.	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time. GRDC have invested in many aspects of this issue in their soil constraints investments, and also with the RCSN project 'Case study booklet of northern wheatbelt growers investigating options for herbicide resistance management and lime incorporation methods', project number GIA00005-A.
<i>M, TS: N and pH testing and sampling methods:</i>	TS - Soil nitrate and pH testing. What can be done with the current machine (Planfarm Richard Quinlans machine) already around? What was the outcome? M - Understanding the N organic pools in continuous cropping. Developing soil testing methodology for disturbed profiles especially around N, P, K.	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time. A recent GRDC investment is addressing much of this question.
<i>M, TS: Cereal disease management</i>	Noted as an issue but not expanded further at this time.	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time. The RCSN will ensure that it is raised with GRDC.
<i>RCSN, M: Increasing fertility and water holding of soils</i>	Example includes composted chicken manure spread over topsoil...being done in Esperance as incorporated with composted chicken manure...but cost is much cheaper just using non-composted and no incorporation unless necessary. Biochar - Banding low rates of biochar with fertiliser to improve fertiliser efficiency. Further research. Low rainfall soil improvement utilising soil microbes (want to hear from Gupta on variable rate from Adelaide) want to	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time. The RCSN will ensure that it is raised with GRDC.

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	identify the most important microbes. Interactions between VAMS and gypsum for amelioration of sodic clays. Most important microbes and can they be utilised to improve in other soils. Includes VAM work by Lynne Abbott.	
<i>M, TS: Stubble manage following high yielding years</i>	What are the best options?	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time. The RCSN will ensure that it is raised with GRDC.
<i>RCSN: Collaboration with Morawa Ag School:</i>	Increases capacity as well as getting research done.	Noted by RCSN members at their closed member meeting, however the RCSN did not further develop this at this time. The issue will be included in feedback to GRDC.
<i>RCSN: Monoculture a big issue for North Eastern farms (Pindar, Canna):</i>	Wheat-wheat-canola-wheat. Not enough research hitting the ground in these areas...DAFWA Geraldton largely absent, and DAFWA South Perth and Northam absent as well.	Noted by RCSN members at their closed member meeting, however the RCSN did not further develop this at this time. The issue will be included in feedback to GRDC.
<i>RCSN: PreDictaB to detect good pathogens etc, not just bad</i>	This will help to quantify and track if soils are supporting beneficial organisms and fertility.	Noted as an issue by RCSN members at their closed member meeting, however the RCSN did not further develop this issue at this time. A recent GRDC investment is addressing part of this question.
<i>M: Grain quality, ways to improve:</i>	More agronomic package work to grow noodle wheats.	Noted by RCSN members at their closed member meeting, however the RCSN did not further develop this at this time. The issue will be included in feedback to GRDC.

NB: ALL issues raised at the Open Local Forums 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.

Connect with Us.

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. To view presentations from the open local forum, please visit <http://www.rcsn.net.au/open-Local Forums.html>

Thanks and Further Details.

Thank you to everyone who attended the Open Local Forums and contributed to the detailed discussions. For further details on the RCSN, please visit www.rcsn.net.au or contact Julianne Hill (GRDC Regional Cropping Solutions Network Co-ordinator) on 0447 261 607 or email regionalcroppingsolutions@gmail.com.