

**Perth Research Updates Day 2 Focus Session**  
**GRDCs Regional Cropping Solutions Network Open Forum**  
February 26th, 2019  
Convened by RCSN co-ordinator, Julianne Hill

Approximately 61 participants attended the Day 2 Focus Session of the Perth Research Updates: RCSN Open Forum held on February 26<sup>th</sup>, 2019 at the Perth Crown Casino. Participants heard from Lucy Broad/Luke Gaynor (Grower Services) on how the RCSN operates and how it fits into GRDC as a whole. This was followed by Jo Wheeler who discussed some areas of RCSN initiated investment.

After these introductory discussions, participants were asked to logon to Groupmap (an online brainstorming tool), and were paired up. They were then offered the opportunity through a facilitated discussion, to provide input into three main areas (in the following order):

- ISSUES that have an impact on the profitability of growers in your port zone. Be specific and add as much detail as possible
- CONSTRAINTS or OPPORTUNITIES for possible GRDC Investment - can be trials, workshops, long term research, resources etc
- FEEDBACK or SUGGESTIONS for GRDC. Can include feedback on all things GRDC

It was a very interactive session with some positive input from those who attended. A number of issues were raised and all of these are noted below. For the feedback session to GRDC, a number of staff including GRDC CEO Steve Jefferies, Bronwen MacLean; Jo Wheeler; Lucy Broad; Luke Gaynor; and a number of Western Panel members were able to answer questions raised via Groupmap. This was much appreciated.

Growers and industry who attended (approx. 40/60 split) were able to contribute all ideas and were asked to add as much detail as they could around the issue/idea they raised. In most instances this happened – in some they have just included a one sentence statement or suggestion for GRDC.

All of these issues were considered by the Esperance and Kwinana West port zone Regional Cropping Solutions Network the following day when they held their member meetings. Those in ***ITALICS*** have been ranked very highly by one of the five RCSN member groups at their February round of meetings, and have been further developed for possible GRDC investment as an RCSN initiative.

For further information or queries, please contact:

Julianne Hill  
RCSN coordinator for the Western Region  
Email: [regionalcroppingsolutions@gmail.com](mailto:regionalcroppingsolutions@gmail.com)  
Mob: 0447261607

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## ISSUES that have an impact on the profitability of growers in your port zone.

Issue Raised	Further comments	Further comments	Further comments	Further comments
<b>Canola establishment is poor when sowing early. Can we find ways for canola to be sown deeper to avoid temperature fluctuations and chase moisture?</b>	1. More trials needed to answer this			
<b>Control of Blue lupins in white lupins (angustifolious).</b>	Basta? Roundup? Think the work has been done but not taken forward. Recognise that human consumption is a possibility but we are foregoing profit now for a future maybe.	1. Garlon. Can it be looked at for suppression?		
<b>Define profitability, is it one season or farming system profitability.</b>	1. That's why we need OP canola!	We need a profitable break crop over time		
<b>Encourage the development of Focus groups for further expansion of legume crops, of farmers that can share their experiences</b>	1. This would be a good add on to the current RCSN project port zone break crop demonstrations			
<b>Work on overcoming establishment problems early sown canola, related to temperature fluctuation and low moisture.</b>	For example, we can work on developing larger seeds for deeper sowing. We know wild relatives of canola have better heat tolerance in germination.	1. Wild relatives of canola have better heat tolerance. Would it be useful to make canola more tolerant by bringing genes for tolerance?	2. Predominately respiration rate and seed energy reserves issue.	3. There will be genetic variation for these properties but probably not in existing canola varieties. We need to look wider to wild relatives of canola

	Let's bring those genes into the canola breeding pool.			
<b><i>With trend of earlier sowing of canola, we need research on frost as it is now more prone and seeing more frost damage at that early sowing time</i></b>	1. Phenology, impact on yield and quality	2. Research on sensitive stage to frost, impact on yield		
<b>Would moving gravel down to the bottom of the hills and replacing it with clay from down the slope have an effect on Non-wetting and also see a reduction in frost effect?</b>	1. What clay percentage do we need in the non-wetting gravel to overcome the non-wetting issue?	2. Would this added clay have an effect on reducing frost damage?	3. See Dave Hall... he knows	
<b>Sodic subsoils are impacting on profitability in the Esperance area</b>	More work needed on sodic dome clay subsoils in the Esperance port zone			
<b><i>Work on ESN or Controlled release N/Nitropryn to improve NUE and reduce waterlogging yield loss</i></b>				
<b>Essential we have strong Focus on high yielding OP canola. Cost of seed not profitable for hybrids in low rainfall zone</b>				

<b>Gravel soils management</b>	<p>How can I increase productivity on these soils. Can I increase productivity on my forest gravels? Or are they always going to be low due to poor water holding capacity and root growth?</p>	<p>1. Claying non-wetting gravels, how much clay is needed, how deep do we need to incorporate, does it work</p>	<p>2. Looking at what are the productivity constraints on these soils. Can't just be crop establishment</p>	
<b>Having the Ability to place nutrients deeper into soil profile to increase the depth of our bucket</b>	<p>1. Long term responses</p>			
<b>How can we get Real time weather information from the new doppler radars in the wheatbelt?</b>	<p>1. There should be information on DPIRD website about climate work done by Ian Foster etc</p>			
<b><i>Lupins are not as profitable as they once were, is this because there is more canola going onto good lupin country and the lupins are heading to the poorer soils?</i></b>	<p>1. Survey to identify where and when in the farming system lupins are grown. Stocktake of lupins in the farming system</p>	<p>As we use high rates of select to control ryegrass does this have a negative effect on rhizobia?</p>		

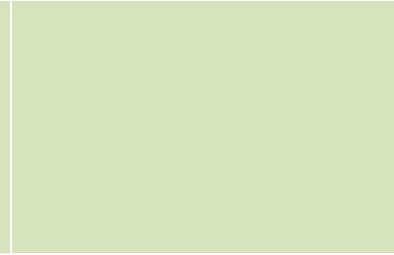
<b>Non-chemical weed control (eg HWSM) for wind dispersed seeds such as fleabane, matricaria, statice, sow thistle, windmill grass</b>				
<b>Further options for suitable crops for HRZ</b>	Perennial wheat in HRZ grain and graze			
<b>Profitable grain legume is lacking still.</b>	Need for better boron tolerant lines of lentils with good Boron resistance. Also, lupins for the HRZ combining appropriate longer season phenology and disease resistance. Chickpeas with chilling tolerance	Profitable legume package for yellow sands in Geraldton port zone.	Growing, selling marketing of these legumes. Integrate weed management package.	
<b>Seasonal rainfall has a major impact on profitability. Better weather forecast that allows to play the season would improve profitability</b>	1. Needs to be seriously considered. It is in the same category as frost. Not easy decisions but getting it right will have a significant impact on risk in farming			

<b>Snail management in Calcium enriched high stubble retention systems</b>	1. Include slaters here			
<b>Ways to reduce waterlogging in southern coastal areas</b>	Summer legume for the south coast in wet areas			
<b>The ability to test crops in real time for added nutrient application to maximise yield gain</b>				
<b><i>Transient Waterlogging is become an increasing problem causing crop loss and raising soil salinity. Can drainage pipes work so I can crop over the top? Or is the land going to be lost to trees.</i></b>	1. Heaps of surface drainage options developed by south coast farmers in the 1990's to early 2000's including raised bed cropping systems. Google Greg Hamilton, raised beds.	2. Waterlogging is more than just excess water. There is an interaction with transient micro element toxicities.	3. Need to look at agronomic options.	4. Any high value trees that might be suited to these conditions?
<b><i>Weather events such as this years drought, frost, heat stress</i></b>	How can we better handle these extremes?			
<b>Would farming at 80% of potential profit be better long term, regarding price, environment, soil health, mental health etc rather than extracting every ounce out of the system?</b>	1. Seasonal variability means businesses rely on farming to potential because the occasional good year funds the more regular poor years			

**Dry climate. Dry land farmers rely on soil moisture retention and We need to better maximise moisture retention.**

Stripper front/disc seeder systems is one way of addressing soil cover and moisture retention? Rotation integration, pest and disease management strategies, nutritional aspects etc.

We don't as a rule use discs because of trifluralin, rhizo and poor early vigour. Zero till does however give other benefits, and is as different from no till as no till is from conventional seeding.



## CONSTRAINTS or OPPORTUNITIES for possible GRDC Investment - trials, workshops, long term research, resources

Issue Raised	Further comments	Further comments	Further comments	Further comments	Further comments
<b>Breeding of feed grains, there is a big difference between a downgraded milling grain and a feed grain</b>	1. When you add quality traits into varieties for milling it is at the expense of yield. Need higher yielding varieties that doesn't need high quality for milling. Eg ME, digestability	2. Paid base on ME and digestability, but needs agronomy and breeding research	Find markets for low protein ASW and soft wheats or do work in pre- breeding so we have grain qualities that open markets for an over-supply of low protein wheat		
<b>Canola is a new crop with low genetic diversity and is not performing as it should</b>	Restricts our ability to overcome new challenges. We need to go back to basics to expand its diversity from its wild relatives				
<b>Can't source enough quality labour.</b>	This is constraining farm business profitability and expansion.	Farm managers very over worked. Do a cost analysis on autonomous units, the use of drones, do case studies on people using new technology.			
<b><i>Depth to clay imaging to improve confidence in delving and ripping depth.</i></b>	This will help growers better target their energy and resources knowing that their actions will have a positive effect				
<b>Engagement of young people in agriculture in schools, especially in the city.</b>	1. Huge need for better general education and to attract young people into careers in grains industry. We need to engage with	2. Concern from a range of growers with livestock and intensive cropping systems on their social license to	3. Need secondment/swap of Ed and Ag professionals program. 2 to 3 people each year. Teacher	4. Do we need as an industry to employ more staff in the extension component of	5. Development of curriculum units/content which can be included in science

	<p>the education dept so that the barriers that have been put in place are reduced or eliminated to allow this to happen. Presence at careers days is probably too late. Need more ag topics in curriculum. Talk to education department. Need ag units/subjects available in mainstream schools. Therefore, need ag teachers!</p>	<p>farm and how we maintain the ability to continue farming as they sit fit while managing sustainability.</p>	<p>seconded to agriculture to work with researchers and industry, attend field days, develop networks, accumulate resources. Agricultural professional seconded to Ed dept to work with teachers, advise on curriculum content, help write assessments, conduct teacher workshops/PD, talk to classes.</p>	<p>agriculture to help further agriculture to city schools. Agricultural content included in curriculum for every school, every class, every subject, every student, every year.</p>	<p>and humanities courses in schools. Teachers look for content.</p>
<p><b>Don't understand <i>Root cause of why crops get frosted from a physiological and physical perspective.</i></b></p>	<p>Including the effect of canopy wetness and rainfall on frost damage in crops on role of ice nucleating bacteria and its activity in normal production systems.</p>	<p>1. Need to study whether ice nucleating bacteria causes the reproductive frost damage or whether frost damage causes the bacteria in our major crops including field peas, oats, canola wheat barley etc.</p>			
<p><b>Establishment of canola. Especially early sown in marginal moisture/high temperature.</b></p>					
<p><b>Feasibility of government subsidies for liming with regard for potential return for the state</b></p>					

<p><b>Fund research into classifying gravel soils and their productivity so can be used in APSIM</b></p>					
<p><b>Getting International legume researchers (chickpea and lentils) who work on constraints similar to Australia in a workshop will be useful while we are keen to bring back these crops in bigger scale.</b></p>					
<p><b>High value legume agronomy.</b></p>	<p>Investment on widening genetic diversity of lentils as very few wild lentils available in Australian gene bank.</p>	<p>Lack of a profitable break crop. Break crops imply that they are not a priority nor profitable. Do we need to change the language?</p>	<p>Break crops imply that they are not a priority nor profitable. Do we need to change the language?</p>	<p>Ground truth soil borne disease resistance; cold/temp; and disease ratings being developed in other regions in the western region environment for lentils and chickpeas</p>	

<p><b>Lack of innovation on how we use some of our grain products</b></p>	<p>1. Ruminant digestibility of frost affected feed grains for seasons when it's an issue to support market use internationally.</p>	<p>We cannot continue to export bulk grain from Western Australia. We have the highest costs in the world but we don't have the best product.</p>	<p>Lupins are an exceptional product, they need to be marketed as such. We need people to market our grain, at the moment we only have traders.</p>	<p>AEGIC needs to be allowed to be innovative as David Fienburg was trying to be before he was moved on. AEGIC also need to be allowed to develop markets, such as feed grains into Asia based on Digestability and Metabolic Energy</p>	
<p><b>Long term rotational trials</b></p>	<p>Need 5 years to see OC shift, for example) looking at Vetch (grazed)/C/W/B vs C/W/B to examine GM variability and soil health metrics</p>				
<p><b>Matching the yield potential across whole farm</b></p>	<p>Many areas have environment to produce yields as high as 10+ t/ha based on spot yields from calibrated yield monitors.</p>	<p>Need to work out why these areas yield higher vs low yield areas. Soil engineering is only way to achieve this.</p>			
<p><b>New break crop agronomy including vetch and linseed.</b></p>	<p>1. Broad leaf control, seeding rates and timing. Systematic trial of species by time of sowing by rainfall zone.</p>	<p>2. Impact of linseed on snail and slug numbers in subsequent crops</p>			

<b>Nutrition strategies for hybrid canola.</b>	Is it the same as OP or do we need to be higher to achieve the yield potential of hybrids as they are not achieving the yields I expect in a higher rainfall location.				
<b>Opportunity to Use early adopters to help educate grower groups in ways to achieve good results, so we don't all have to reinvent the wheel.</b>	RCSN could be used to facilitate this				
<b><i>Review the surface drainage work done on the South Coast</i></b>	Can it be used or modified to work in the Cuballing area?				
<b>Sclerotinia information</b>	Factors leading to expression in southern regions (Albany and Esperance port zones). Also, ROI from fungicides (timing and rates)				
<b>The amount being paid for Royalties are a constraint.</b>	Farmers are forced into growing varieties with a higher royalty because CBH won't receive particular grains				

<b>Unlocking the sodic dome clay subsoils in Albany port zone</b>	No further information at this time				
<b><i>Soil health workshops, particularly on effect of burning stubbles</i></b>	Topics to include worm ID, cost of stubble removal in \$\$, hot burn vs cold burn, zero till vs min till				

## FEEDBACK or SUGGESTIONS for GRDC. Can include feedback on all things GRDC

Issue Raised	Further comments	Further comments	Further comments
How do we protect our IP?	Concern that GRDC are not keeping ownership of all IP and losing money for growers		
Cost analysis on reeфинating	1. What are the range of returns for different reeфинator activities on different soils over long time frame? When is it just never going to be profitable?		
Do the RCSN port zone boundaries accurately reflect the variation in soil type across the zone?			
Don't drop the ball in Breeding high yielding OP canola lines	1. Do bulk handlers have a role in enforcing EPR collection? Possibly?		
Don't waste too much time on the slow adopters. Sometimes people don't want to change; while sometimes it's not the right time for them....			
Extension and participatory extension/trialling of past strategic plan research outcomes to drive adoption on farm. Ensure if case studies are used that more data sits behind them to ensure success is transferable.	1. Teach a farmer and get them to get the message across. There is often a lag of about 20 yrs from research concept starting to widespread adoption. Especially when investment from growers to adopt is required.	2. Participatory research and trials with lead researcher and leading growers who can answer and work together on the nitty gritty to understand and refine research program to address barriers to adoption as they occur.	3. GRDC now have a well-resourced WA office. It's time to get employees out to work with grower groups to extend relevant info
Extension and more frequent RCSN meetings.	It would be good if the RCSN meetings could be done more often in an extension role (similar to how the Ag Dept use to run). People can't always get to the annual meetings to provide the information to the		

	RCSN. I would like this to be more of a two way event more often. Perhaps even have a focus topic at each one, new apps, weather information or forecasting, new technology, NVT results, soils, social media etc.		
<b>Farmer access to Updates needs to be encouraged.</b>	They already pay for access with their levies! They are also expensive to attend.		
<b>Good that focus has shifted slightly from Productivity to profitability. However, GRDC needs to do more in this area.</b>	When trials quote gross margins, all costs need to be included. (Overheads, interest etc)		
<b>GRDC recognises that R and D capacity is not large in WA and that Collaboration between DPIRD, CSIRO and Unis can lead to good synergies. Large projects need this collaboration.</b>			
<b>Greater transparency required for which region levy funds come from, and which regions receive the levy, which region national level activity is funded into. Needs to be a simple table or graphic</b>			
<b>Is looking long term, managing soil and increasing soil health to improve plant health and resilience part of this thinking around regenerative ag? Profitability over the long term for farmers and communities against profitability for corporates and chemical producers.</b>	Is the push to regenerative ag a threat to our production system? They advocate a model which reduces our yields to 1/3 of their current level. Yes costs are lower, but mining soil and pandering to sensationalism and vegan extremists		
<b>Is the Definition of enduring profitability right?</b>			

<p><b>Is there a place in GRDC funding for research that is not directly commercial, or that needs a longer term focus, particularly as farmer levies fund most programs.</b></p>			
<p><b>Research that has been funded in part by GRDC needs to get to farmers in a timely manner.</b></p>	<p>Example 1: microwave technology for killing weeds by Graham Brodie is now sitting on a shelf at Melbourne University waiting for commercialisation.</p>	<p>Example 2: green on green research being done by Stephen Rees at Toowoomba University about 10 years ago. He could not get any funding from GRDC and he ended up getting some funding from the pyrethrum industry???? This needs to be followed up</p>	
<p><b>Sometimes it is important to look at HOW the top growers are doing it not just WHAT they are doing</b></p>			
<p><b>Use older varieties in NVT, test for good feed varieties ie high digestability and Metabolic energy</b></p>			