GRDC's Esperance port zone Grower Network held their member meeting on 6th and 7th August, 2020 at Hopetoun CRC. As part of their meeting, the Grower Network members visited local growers Courtney Foulds (faba beans) & Stott Redman (Reefinator) and invited them, plus RAIN EO Elisa Spengler and Chair Jodi Duncan to dinner at Wavecrest. 10 of the Esperance port zone Grower Network members attended their meeting including: John Sanderson, Holly Mieklejohn, Andrew Fowler, Peter Daw, Kirk Jeitz, Tristan Cornwall, Nathan Mudie, Cameron Mudge, Joel Ebert, Monica Field. Gemma Walker (Western Panel); Lizzie Von Perger via Zoom (GRDC Grower relations – West); Julianne Hill, Grower Network coordinator and Grower Network support Cindy Power, Emma Pearse and King Yin Lui (DPIRDs RRA team) were also in attendance.

All Grower Network members were asked to bring ideas from five farmers/advisors from their area, and to consider these ideas along with ideas raised from the online open feedback that was hosted at www.rcsn.net.au and open for the month of June. They were then asked WHAT WILL HELP GROWERS? Consideration was given to area, frequency and impact on profit of the issue or idea and ideas rated accordingly. These ideas/issues were further discussed: Does this issue still need some work done or has it been fully addressed with past or current R, D or E? ie there is a Research, development or extension gap still. Are they still an issue? Has enough been done on them?

From this, the following were developed:

- A full list of Issues, constraints and opportunities impacting on growers in the Esperance port zone
- Area, impact and frequency of Issues that the Grower Network considered needed more work or that there was a gap still
- NVT ideas session along with an NVT update given by NVT representatives Tristan Cornwall and Nathan Mudie.

Grower Network members then further discussed and expanded on those top issues that they believe need further investment, and decided on some areas to further explore for possible R, D or E by GRDC and/or partners as below:

- Three Deep Dive issues: Improving crop germination and establishment; Salinity; and On-the-Go nutrition
- Two MAKATs: Improving crop germination and establishment; and Salinity
- Three Issues Captures: Non-glyphosate options; caltrop management and seed viability; and Earwigs/slaters

A Zoom update on 'On-the-Go nutrition in the paddock' was held. Rowan Maddern (GRDC) put together some ideas for the group to think about, and speakers included Ron Master, DPIRD; Ben White, Kondinin Group; and James Easton, CSBP updating us on the technology in this space. This formed the basis of discussion and input for the Deep Dive/MAKAT above.

Table 1: Summary of areas of Interest raised via Online Open feedback or by Grower Network members

Top issues, opportunities or constraints raised at last two meetings (Feb 2020 & July 2019)	GRDC Action Taken	Any Further Action Required & Comments
Identifying and understanding soil constraints by having access to soils researchers on farm	New Investment: Out to open tender 'An analysis of 3D soil constraint diagnosis and options for on the go management of variable soil types (PROC - 9176250) - aimed to enable accurate and timely amelioration of variable paddocks on the go, optimise ameliorants and inputs (i.e. lime, fertiliser rates, ripping depths) and reduce risk of soil structural damage due to blanket or incorrect amelioration. Soil Constraints Extension Project, lead Wayne Pluske (PLT1909-001SAX) - a variation recently processed to put together a handbook on this.	No further action required at this time
On the go nutrition testing. Deep Dive conducted on this issue	Improved sampling methods to better predict nutrient availability project (CPS1801-004RTX) being led by CSIRO is looking at a new standard method for soil sampling across nutrients, soil types and farming systems (specific to each).	Soil testing is not really on the go....

Faba bean, Albus lupin, chickpea and lentil agronomy work for the Esperance port zone; Agronomic packages (demos and benchmarking) for rotation crops and legumes across the PZ	SEPWA legume demonstrations (SEP1803-005SAX), in last year of trial work (cereal after legume) on some sites. Sites in Beaumont, Coomalbidgup, Ravy, Salmon Gums, Gibson. Lupins best in 2019 in Coomalbidgup and filed peas in Beaumont. High value pulse project, lead Mark Seymour DPIRD DAW1903-004RTX, started last year. Best-bet legume packages for different areas. Particular focus on new faba bean, chickpea and lentil varieties and agronomy packages. Dryland pasture legumes systems with Ron Yates (Murdoch Uni) and CFIG, CSIRO, MIG (UMU1805-001RMX). Increasing the effectiveness of nitrogen fixation in pulses through improved rhizobium strains with Ron Yates (Murdoch Uni) and Curtin Uni (UMU1805-001RTX). Double break with a high value pulse WMG (WMG2003-001SAX) - lentil or chickpea after a canola, against a cereal. Sites in Dandaragan, Latham, Narembeen and Cuballing. First year of a three year demonstration. Integrated disease management in western region grain crops, led Geoff Thomas DPIRD (DAW1907-001RTX) - optimal disease management approach for chickpea and lentil. Project commenced last year.	No further action required at this time
Improving crop germination and establishment. Deep Dive & MAKAT conducted on this issue	New project in Procurement - providing better info and tools to growers to enable them to better predict % canola establishment required. TrialCo (TRC2004-001SAX) - improving germination and establishment (especially of canola) when dealing with non-wetting across different stubble loads and types. Located in Cuballing, Nyabing, Newdegate, Lake King and Gibson. DPRID 'expanding sowing window for canola and lupins' led by Martin Harries (DAW1901-005RTX) - developing risk profiles for canola across sowing dates, varieties and environments. Kelly Cussons Media (CMP1903-001WCX) ''Golden Rules for Canola in the Kwinana East port zone' booklet' - pulling together NVT info, info from tactical break crop agronomy project, and learnings from growers successfully growing canola year in year out. Corrigin Farm Improvement Group CFG1802-001SAX - so far found that there is great variation in establishment and yield between high and low down force pressures rather than between different press wheel types. A variation was processed in 2020 to explore pressures more. West Midlands Group WMG1802-001SAX - found that across 9 sites with differing soils types that there was little difference between in crop emergence between single and paired row seeding configurations. Project recently completed.	Effects that liquid traces and higher rates of UAN has on establishment?
Nutrition management and measurement: matching Nutrition applications to protein requirements	Murdoch University ' Genetic approaches to reduce the nitrogen dilution effect and increase nitrogen' (UMU1506-001RTX) - New gene sources that to give growers new wheat cultivars that have improved nitrogen use efficiency to achieve higher protein levels. Ends Dec 2020. Farmanco 'Grain protein yield project, How does behaviour impact the technical choices that are made to grow better quality wheat' (FMO2002-001SAX) - Project will work with three grain growers from each WA port zone to understand their motivations behind N fertiliser decisions and what tools they use. Each grower will run a paddock trial whereby all technical and economic info is collated as well as decision making information.	I am not sure these GRDC responses have hit the mark on what some of the queries were asking, seems to be only addressing protein. The nitrogen question is probably much broader than that?

Management of sodic soils	Improving wheat yields on sodic, magnesic, and dispersive soils, lead Uni of Adelaide (UOA1507-002RMX) - development of strains of wheat with improved tolerance to the stresses caused by sodic soils. Ends 2021. Soil Constraints Extension Project, lead Wayne Pluske (PLT1909-001SAX) - hands-on and practical extension of soil constraints research work. In-field workshops held in Tincurrin, Meckering, Wagin and Nyabing. Esp, Gero and KE port zone workshops still to be held, COVID dependant. Recent tech note put together on sodic soils as well numerous practical groundcover articles. Wayne is also available to talk with groups about research as required. Ends Dec 2021.	Would have been good to see new research work into these soil management issues, not just the looking at old methods
Review and validation of the frost work that has already been done in the Esperance port zone	New investment: extension of the current knowledge to assist in informing grower decision making to mitigate impacts of frost as much as possible. It will also inform future RDE in the frost space. Other frost investments still underway: - DAW00234 - Determining yield under frost one degree at a time. CSP00198 - Spatial temperature measurement and mapping tools to assist growers, advisors and extension specialists manage frost risk at farm scale. UA00162 - Screening of frost tolerance in cereals. CSP00202 - Identification of wheat frost tolerance loci using a combination of genetics, biochemistry and molecular approaches. ACP00010 - Benchmarking and field validation of transgenic frost tolerance wheat lines. GRS11000 - Frost temperature dynamics and rapid post event identification of damage to broadacre	Possibility of extension through collection of grower data on frost events. How they are combatting it and what are the results. Would a large scale grower based project give more info than conducting further small scale conventional frost trials?
Chemical control options for late germinating ryegrass in all crop types	Cultural management for weed control and maintenance of crop yield, Uni of Adelaide (UOA1707-005RTX) - variation to project to specifically investigate the effect of weed emergence timing, dry seeding and crop competitiveness on annual ryegrass competitiveness and seed production. Trials being implemented in 2020 in Mingenew, Dowerin and Grass Patch and in 2021 in Geraldton, Wyalkatchem and Munglinup. Grower groups involved include MIG, MADFIG, WANTFA CFIG and SEPWA. Ends June 2022. Locally important weeds, Alex Douglas DPIRD (DAW00257) - Includes marshmallow biology and control options. Ends June 2021.	No further action required at this time
Growers want to be able to measure the depth to different soil layers, and the effects of deep ripping shallow duplex soil and loamy clay soils.	New Investment: Out to open tender 'An analysis of 3D soil constraint diagnosis and options for on the go management of variable soil types (PROC - 9176250) - aimed to enable accurate and timely amelioration of variable paddocks on the go, optimise ameliorants and inputs (i.e. lime, fertiliser rates, ripping depths) and reduce risk of soil structural damage due to blanket or incorrect amelioration. Soil Constraints Extension Project, lead Wayne Pluske (PLT1909-001SAX) - a variation recently processed to put together a handbook on just this topic. Ripper gauge project WMG (WMG1803-002SAX) - WMG is compiling the results for the whole WA region. In final year. Sites with MIG, Liebe Group, WMG, SEPWA, MADFIG, SCF, CFIG & Facey.	The germination on some ripped heavy clay has been very poor this year. It seems to take the clay a lot of rain before it wets again and breaks down the small aggregates to enable seed soil contact.
Nutrition and updated response curves for maximum production on ameliorated soils	Nutrient re-distribution and availability in ameliorated and cultivated soils in the Western Region, lead Craig Scanlan DPRID (DAW1801-001RTX) - 2019-2020 trial Esperance research station, limed and ripped against control with different nutrition regimes. Variation to project completed to include trace elements and post amelioration nutrition guidelines. Overall project ends 2021.	Recommend longer term look at this issue

Timing of glyphosate to crop top canola looking at ryegrass timing and rates	If the EU risk of glyphosate is high and we potentially can't use this tool, what other research around late ryegrass would be good to look at?	This is a hard one as this is a very common practice and has been for years. It can have a big impact on profitability & future ryegrass seed banks. Possible work could provide more of a data bank to talk about MRL and timings going forward
Caltrop is becoming an increasing issue on many properties in the port zone. Issues capture conducted on this issue		No further action required at this time
With lack of break crop options, cereal root disease is starting to become more prevalent and is impacting on production	Soilborne pathogens of Winter Cereals: Extension of Identification and Management Strategies, led by Farmlink (FLR1912-003RTX) - working with GGA and Sarah Collins DPIRD to deliver workshops in 2021, TBA. Sampling will be conducted 2020. Soilborne diseases interaction in Australian farming systems (DJP1907-002RMX) - looking at new tools and technologies and novel soil-bourne disease control options. Interaction between pathogens and abiotic constraints will be explored. All resulting in improved, cost effective and sustainable management of soil-bourne diseases. Extent of RLN and option to address, lead Farmanco (FMO1903-001WSX) - Includes growers surveys, large sampling program (400) and field demonstrations (delayed till next year, one each pz). Results from surveys show that 88% of growers sampled only when they suspected there was an issue (with majority in this category rating nematodes a min to low risk to production) and of the samples taken, 45% of samples were in the medium to high risk category for neglectus and about 20% were in the medium to high risk category for Quasitereoides.	No further action required at this time
Engagement of young people in agriculture in schools, especially in the city	GRDC is a member of the Primary Industries Education Foundation (PIEFA) - the foundation aims to engage Australian schools and community through education of food and fibre production and agricultural careers. Only three WA schools are members and membership is free!!	Who is promoting this on the ground? There is a national problem which has been identified. People don't want to work on farms
Management of high PBI soils	The NPK Project (UWA1801-002RTX) being led by Craig Scanlan (with UWA, Murdoch uni, Summit and CSBP) identifying gaps in current N, P, K fertiliser management due to climate and systems changes since crop nutrition knowledge first obtained. Will update nutrition guidelines. The team have done numerous trials on a range of PBI soils with some of the outcomes being that growers should account for deeper P not just P in the 0-10cm. Increasing knowledge and profitability of cropping on Ironstone gravel soils, lead Dan Murphy (UWA1906-008RTX) - better understanding of soil mineralogy and chemistry to develop tools and methods to increase P availability.	No further action required at this time
Upskilling growers with information on rain forecasting and deciles in the Western Region	GRDC Podcast 'Interpreting Weather Forecasts' with Neil Bennet (BOM). Released 12 February 2020. Has had 865 plays. Rural R&D for Profit 'Forewarned is forearmed': managing the impacts of extreme climate events (9176634) with MLA - generating new knowledge and technologies to provide unique forecasts of extreme weather, working with BOM.	No further action required at this time

Variable rate technology	SPAA 'Hands-on PA training for growers' (SPA2001-001SAX) - National project. Comprehensive grower survey is currently being undertaken (early 2020). This will inform what the needs are for growers in terms of PA technology in each of the regions. There will be 9 workshops delivered in each 2020/21 and 2021/22 which also aims to cover ROI of PA tech. Locations have not yet been decided upon, however SPAA working closely with GGA to roll out in the West.	No further action required at this time
Updating phosphorus response curves on high yielding canola	Hyper-yielding crops, lead by FAR Australia (FAR2004-002SAX) - site at Green Range (WA) with SCF. Will include nutrition component. The NPK Project (UWA1801-002RTX) being led by Craig Scanlan (with UWA, Murdoch uni, Summit and CSBP) identifying gaps in current N, P, K fertiliser management due to climate and systems changes since crop nutrition knowledge first obtained. Will update nutrition guidelines. High Rainfall Zone Project (SEP1904-002WSX, SCF1902-002SAX, DAW1903-008RMX) - HRZ project with DPRID, FAR, SCF and SEPWA looking at closing yield gap in canola and wheat in higher yielding environments, nutrition work included.	No further action required at this time
Non-mechanical solutions to soil constraints	West Midlands Group (WMG2004-002SAX) - Literature review (domestic and international) to be conducted to determine plants that can penetrate soils above 2500kpa and which also have a fit in the WA farming systems. Commenced early 2020, due late 2020.	No further action required at this time
Economic response of late season fungicide applications on cereals	Hyper-yielding crops, lead by FAR Australia (FAR2004-002SAX) - site at Green Range (WA) with SCF. Will include nutrition component and disease component. Integrated disease management in western region grain crops DAW1907-001RTX - experiments in Esperance to look at control of Ramularia in barley - assessing efficacy of a range of disease management approaches to reduce expression of disease and in wheat, examining how in a longer season environment choice and rotation of fungicide groups (DMI v QoI v SDHI) impacts disease development, grain yield and particularly grain quality (screenings & staining / discolouration). CCDM (CUR00022, CUR00023) ongoing investment - disease and resistance management.	The aim of this work is to apply a final fungicide at the very start of grain fill to protect the potential yield. Work I have seen has given a consistent return and visually a striking result with much brighter crop with this later application compared to a black colour in untreated at senescence. Understanding fungicide group rotations and best practiced resistance management is key to this work.
Delving and biomass effects on frost damage	New investment: Procurement being negotiated at the moment around extension of the current knowledge we have now (much from NFI) to assist in informing grower decision making to mitigate impacts of frost as much as possible. It will also inform future RDE in the frost space (grower driven so this issue will be raised with Facilitator for Esperance once contracted).	No further action required at this time

New ideas from this meeting	GRDC Action Taken	Any Further Action Required & Comments

Improving germination and crop establishment in all crops	New project in Procurement - providing better info and tools to growers to enable them to better predict % canola establishment required. TrialCo (TRC2004-001SAX) have a new project invested in by GRDC looking at improving germination and establishment (especially of canola) when dealing with non-wetting across different stubble loads and types. How different wetter types, placement and rates interact with stubble loads and types. Sites located in Cuballing, Nyabing, Newdegate, Lake King and Gibson.	Grower Network members believe that further work needs to occur on this area. Is high N or K at seeding having a negative effect on germination especially in canola? Investigating the use of pre germinating canola before seeding. A project to see if this is a viable option to look at, wetting and then drying to put through an air-seeder. Effect of the fungicide seed treatment on the germination. Is that causing some of the problems. Getting good soil seed contact to prevent seed going mouldy. Eg. beans. Risk of different seeding setups - precision planters, different depths to seed canola, seeding on an angle. VRT seeding rate and varieties of canola. Create prescription map for high and low rate of canola for different soil types/areas. Also, VRT map for varieties – eg. poor areas use high rate of OP and productive areas use lower rate of hybrid.
Salinity is becoming a major issue. Deep Dive & MAKAT conducted on this issue		Grower Network members believe that further work needs to occur on this area.
Nitrogen applications in difficult autumn/winter conditions.		Grower Network members believe that further work needs to occur on this area. Foliar uptake of UAN % and % of urea lost over time. Rely heavily on gut feel and old science
Harvest weed seed management not doing the job any more.	University of Adelaide 'Demonstrating and validating the implementation of integrated weed management strategies to control barley grass in the low rainfall zone farming systems' (UOA1904-004SAX) - looking at seed dormancy in barley grass, Herbicide resistance screening. Working with SEPWA, Kellerberrin Demonstration Group, MIG, WANTFA (Cunderdin), Lakes Grower Group. Looking at best herbicide management options.	Grower Network members believe that further work needs to occur on this area. Many growers are reporting that rye grass and barley grass are growing shorter or following the ground, making chaff carts, seed destructors and chaff rows less efficient. It's an old topic and has been brought up before but there is some strong feedback from growers to bring it up again. Has current narrow row spacing research proved that the “shorter” weeds growers taller with more crop competition through narrow row spacing and crop densities?
Non glyphosate knockdowns. Issues capture conducted on this issue	Grains Weed Advisory Committee, lead Rural Directions (RDP00015) - working to provide integrated weed management strategies for major crop-weed threats to grain production. Will also provide recommendation to GRDC. Recently (2020) two workshops have been held. First involved planning scenario to respond to a range of possible herbicide restrictions (also WA participants). This workshop highlighted a range of broad RDE gaps. Second workshop (May 2020) was a deep dive which refined these RDE gaps to develop a range of recommendations to GRDC. Report is currently being prepared for GRDC.	Grower Network members believe that further work needs to occur on this area. Including double paraquat applications and timings, water rates etc & the potential use of Glufosinate (Basta) and the weather conditions needed. The use of spikes to broaden the spectrum of paraquat. We are comfortable killing grasses but not broadleaf weeds.

Increasing rooting depth/growth in heavy sodic soils	DAW1902-001RTX (David Hall) - Increased grower profitability on soils with sodicity and transient salinity in the eastern grain belt of the Western Region. This project is focused on developing techniques to improve water entry, storage and root growth in sodic soils using current and novel treatments. The emphasis of this project will be developing the science of sodic soil management through experimentation, collaborative consultation (nationally and internationally) and modelling (physical and economic responses). Started in 2019 and finishes in 2023.	Grower Network members believe that further work needs to occur on this area.
Hybrid vs OP varieties in medium and low rainfall areas		Grower Network members believe that further work needs to occur on this area. Understanding the nutrition required to actually allow the hybrid to reach yield potential is a key part of all this. To achieve the higher yield potential of the hybrid will require more nutrition.
Earwig and slater numbers on heavy soil types costing many growers in establishments especially for canola and pulses. Issues capture conducted on this issue		Grower Network members believe that further work needs to occur on this area. Use patterns of different control options, baiting, etc. Earwigs are growing in large numbers and are doing serious damage. Bare earth sprays are very hit and miss for efficacy of control
Pulse fungicide work, comparing new and old fungicide options (particularly with the increasing Faba Bean areas)	High value pulse project, lead Mark Seymour DPIRD DAW1903-004RTX, started last year. Best-bet legume packages for different areas. Particular focus on new faba bean, chickpea and lentil varieties and agronomy packages. Also includes and inoculant component.	Grower Network members believe that further work needs to occur on this area. It's hard to find info on this topic. Possibly some work has been done in the big bean growing areas in SA but hasn't been extended over here?
Soil wetter & nodulation products		Grower Network members believe that further work needs to occur on this area. Effects of soil pH on rhizobium, including a look at some of the new granular comparisons, and looking at if doubling the rates of peat for dry sowing gives better results

Early sowing wheat (winter) varieties	Long Season Wheat Project with Sth Dirt and CFIG. Commenced this year, focus on economics compared to spring type wheat. High Rainfall Zone Project (SEP1904-002WSX, SCF1902-002SAX, DAW1903-008RMX) - HRZ project with DPRID, FAR, SCF and SEPWA looking at closing yield gap in canola and wheat in higher yielding environments, nutrition work included. Demos this year will look at soil amelioration, and winter type wheats up against sceptre wheat and planet barley. Sites in Munglinup and Condingup in the Esperance PZ.	Grower Network members believe that further work needs to occur on this area. We need more info on time of sowing x variety. How much N do these crops need and what is their yield potential given greater tiller numbers? Very exciting space and the real work being done by Luke Marquis and growers ATM - not GRDC or researchers. We seem to be getting good early sowing opportunities with not many options to use them. I think this has great potential for growers especially when we have dry May's. Also need to look into APW varieties to suit South East Asian markets. Getting feedback that hard varieties delivered as APW do not mill as well as APW varieties. This year, there are 2 x SEPWA trials, and Farm and General also have two looking at this N issue. South East Agronomy Service (SEAS) also has an early wheat trial sown mid-March. Early NVT has done a little bit to address this, but we must also include wheat plant breeders in this conversation.
Oats agronomy particularly ryegrass control	Georgie Troup DPIRD 'investigating the phenology diversity in germplasm to optimise the profitability of April sown oats' (DAW1901-002RTX). Variation to look at Beta Glucan analysis through AEGIC to determine if different management strategies had any impact on beta glucan in oat grain. The National oat breeding program finishes at the end of 2020. Murdoch university (UMU2003-002RTX) looking at oat genomic resources for breeders and pre-breeders. Identification of novel sources of resistance to Septoria Leaf Blotch and understanding of evolution and virulence of the pathogen, lead Uni of Adelaide (UOA2007-001RTX) - growers access to oat varieties with increased resistance to Septoria Leaf Blotch. Integrated disease management in western region grain crops, lead Geoff Thomas DPIRD (DAW1907-001RTX) - ConsultAg coordinating trial sites focussing on oat yield and grain quality through disease management in high and low rainfall zones (Narrogin and Lake Grace).	Grower Network members believe that further work needs to occur on this area. We need to have some options for grass control in oats as it's a big restriction to where it can be planted
Faba beans or vetch seed as an alternative to lupins for stock farmers to increase local demand.		Grower Network members believe that further work needs to occur on this area. Continued GRDC support of vetch breeding and variety trials for WA
Which soil types are best suited to chemical fallow for moisture holding (yield increase/soil type)		Grower Network members believe that further work needs to occur on this area.
Long season canola		Grower Network members believe that further work needs to occur on this area.

GRDC making an app version of their old Paddock Diary		Grower Network members believe that further work needs to occur on this area. Lots of farmers are still using paper records and old paddock planner books. They would like a simple, free or cheap app to replace these books. They don't want to spend the money on complex programs, but just want essentially the old GRDC Paddock Diary in an app form.

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

Further Details.

For further details, contact the Grower Network Facilitator Julianne Hill on 0447 261 607 or email **grdcgrowernetwork@gmail.com**. You are also welcome to visit the Grower Network website – **www.rcsn.net.au**; and to follow us on Twitter @Julianne_Hill, or visit GRDC - **www.grdc.com.au**. A number of Grower Network initiated projects have been put on the ground in the Esperance port zone since 2011 and can be found on the Grower Network website.

The summer round of Summer Sesh events will be held in January 2021, followed by a Grower Network member meeting (depending on Covid-19) which will be held in Bremer Bay in February (as a combined meeting with Albany zone). Further details will be available soon.