

## Background

The series of GRDC Local Forums was a new initiative in the Southern Region which was delivered as part of the GRDC Regional Cropping Solutions Initiative. Six forums were held across the low medium and high rainfall zones in SA and Vic in June-July 2017.

The objectives of these forums were –

1. explain and promote investment of grower levies in R,D&E to create enduring profitability;
2. promote the role of GRDC Southern Panel and RCSN members and for growers and industry stakeholders to know the local members, GRDC staff and RCS Lead as contacts to raise issues with the GRDC;
3. for growers and industry stakeholders to validate existing issues and/or identify other important issues for the GRDC to consider;
4. for growers and industry stakeholders to learn about two focus topics and what is being done and learnt as a result of GRDC investment in R,D&E

## The Forum process

Forums were supported and promoted by Grain Producers Australia, Grain Producers SA, Victorian Farmers Federation, Grain Growers Limited, grower groups and other grower organisations, agricultural retail businesses and media outlets.

Forums were held in two locations in each of the three rainfall zones. At each forum two focus topics were presented to highlight GRDCs investment in regionally relevant issues and to identify future R,D and E needs. GRDC staff presented a snapshot of key GRDC investments which will address important issues for growers in the local areas.

A facilitated process was conducted to ensure all attendees could raise issues important to them and to make comment on issues currently on the RCSN priority list as a result of the February RCSN meeting.

Table 1 - Locations and focus topics

Rainfall Zone	District	Location	R,D&E Focus Topic and Specialist
Low	Eyre Peninsula, SA	Cleve	Pests - snails, RWA, RLEM resistance – Dr. Greg Baker (SARDI)
			Herbicide resistance - glyphosate resistance and integrated weed management strategies –
	Mallee, VIC	Ouyen	Weed management - glyphosate resistance, strategies to control late germinating brome grass - Dr. Chris Preston (UA)
			Pests - Russian Wheat Aphid, Green Peach Aphids and other aphids and insecticide resistance – Dr. Paul Umina (cesar)
Medium	Yorke Peninsula, SA	Maitland	Eyespot - current knowledge and management – Dr Margaret Evans (SARDI)
			Lentil breeding - yield, quality and new traits – Larn McMurray (SARDI)
	Wimmera, Vic	Warracknabeal	Farm business management -understanding cost structures, profit focused cost management – Simon Vogt (Rural Directions)
			Seasonal Forecasts - How growers use seasonal forecasts effectively – Dale Grey (AgVic)
High	Western Districts, Vic	Beaufort	Integrated management of Annual Ryegrass - glyphosate resistance, non-chemical control strategies - Dr. Chris Preston (UA)
			Foliar disease management in cereals and fungicide resistance management – Nick Poole (FAR)
	South East, SA	Lucindale	Hyper-yielding cereals for high rainfall environments - varieties and agronomic packages - Nick Poole (FAR)
			Foliar disease management in cereals and fungicide resistance management - Nick Poole (FAR)

## Issues – validation and capture

A total of 386 issues were identified as important issues or opportunities for the long term profitability of grain growers. Many issues raised were very similar and consolidated. All issues captured at each of the forums were collated, presented, considered and prioritised at the meeting of the relevant RCSNs in August 2017.

Tables 3 to 5 present the revised consolidated and prioritised list following the August 2017 RCSN meetings which includes issues raised at the GRDC Local Forums

The entire list of issues (opportunities and constraints) which have the greatest impact on the profitability of growers in the low, medium and high rainfall zones of the Southern Region which were captured at the GRDC Local Forums are presented in Appendices 1 to 3.

The majority of issues raised had been captured previous by the RCSN process either in 2017 or in previous years. Hence, the RCSN process has been effective in capturing the majority of issues however the series of local forums did enable a small number of new issues to be captured.

Table 2 - Summary of issues captured at the GRDC Local Forums and their alignment with issues previously identified

	LRZ	MRZ	HRZ
Total number of issues captured at GRDC Local Forums	138	167	81
Consolidated number of issues from GRDC Local Forums	60	67	34
New prioritised issues from GRDC Local Forums	9	12	14
Identified issues covered within or as part of a consolidated issue identified by RCSN	30	27	15
Issue previously identified by RCSN 2012-2017	16	17	5
Referred issue to relevant organisation	9	8	9

Table 3 - List and source of identified issues (opportunities and constraints) which have the greatest impact on the profitability of growers in the low rainfall zone of the Southern Region

August 2017

Rank No.	Title	Source of issue
1	Improved pulse varieties to increase the profitability of farming systems in the low rainfall zone	New issue captured at 2017 Local Forum
2	The loss of glyphosate as a major tool through either regulation or resistant weed species would significantly impact on the profitability and sustainability of farming systems in low rainfall zone	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
3	As the global trend for pesticide regulation based on hazard rather than risk continues, deregistration of affordable active ingredients will cause an increase in pesticide costs and erode profit margins	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
4	Increased model skill in seasonal forecasts provided from March to May and better forecast utilisation by growers and advisers presents an opportunity to improve decision-making management risk more effectively	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
5	Farm business management skills are essential to improving long term profitability	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
6	Robotics provide opportunities to increase efficiencies and profitability of farm businesses	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
7	New and novel methods of weed control e.g. microwaves	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
8	The risk (either perceived or real) of herbicide residues accumulating in sandy soils in low rainfall environments is reducing returns	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum

9	Limited knowledge, skills and experience of growers and advisers new to pulse growing increases production risk of pulses in the low rainfall zone	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
10	Opportunities to improve the integration and management of livestock into the farming system with site specific grazing are impeded by technology cost and state regulation	Issue identified by RCSN
10	Predicting flowering time and manipulating crop development to reduce exposure during high risk periods to mitigate impact of frost.	New issue captured at 2017 Local Forum
12	The sustainable use of cost effective herbicides and the development of alternative management tools are critical for effective weed control and profitability of cropping systems	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
13	R,D & E capacity in the low rainfall zone is diminished by retraction of public investment in infrastructure and human resources and the exit of experienced professionals	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
13	Opportunities to improve profit are missed as new practices are not adopted due to a lack of grower trust in small plot results	Issue identified by RCSN
15	The downside risk of highly leveraged, high input, high crop intensity farming systems threatens the economic viability of low rainfall farm businesses	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
15	The strong preference growers demonstrate for peer to peer learning via digital communication (twitter) is an opportunity for effective extension to builds skills and capacity and practice change	Issue identified by RCSN
17	Economic thresholds for insect control in the low rainfall zone are poorly defined which causes the over-use of insecticides	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
17	The opportunity to use big data to improve grower profitability in the low rainfall zone	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
18	Glyphosate resistant weed populations are developing on fence lines	New issue captured at 2017 Local Forum
18	Nitrogen management decisions – value of legume contribution and cost vs returns	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
18	Managing insects - forecasts and alerts, new pests, thresholds, new insecticide groups and control of resistant populations	New issue captured at 2017 Local Forum
21	Barley grass and Brome grass control	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
22	Easy to use decision support tools would enable better use of objective data and reduce grower financial and production risk	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
23	Opportunity to improve profitability and long term management of weeds, diseases and soil fertility through better crop sequencing	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
24	Seed banks of problem grass weeds are increasing because harvest weed seed management is not being fully utilised	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
24	Local data for Russian Wheat Aphid risk factors (volunteer species, aphid flights) is scant	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
24	The soil nitrogen supply is declining as crop intensity increases	Issue identified by RCSN
24	The lack of low cost open pollinated canola varieties is contributing to the reduction in canola area in the low rainfall zone	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
28	Widespread adoption of seed applied insecticide for Russian Wheat Aphid control may harm beneficial insects and soil microbes	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum

28	Sandy soils - crop establishment and growth, cover crops and amelioration strategies	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
30	Increasing awareness of nitrogen (N) removal and cycling may improve N management, lower risk and increase profit in the low rainfall zone	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
31	Better access to profit and production focused precision agriculture (PA) support would increase return on investment in PA	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
31	Rhizoctonia – economics of fungicides (seed dressings and in-furrow application)	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
33	Poorly calibrated moisture probes provide incorrect estimations of Total Available Water (TAW) and Plant Available Water Capacity (PAWC)	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
33	There is an opportunity to obtain higher return on investment from sulphur fertiliser by understanding of sulphur dynamics in sandy soils and low rainfall environments	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
33	Improved integration of livestock- flexibility, economics and animal health	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
36	Understanding seed zone environment - vertical furrows - need confirmation	New issue captured at 2017 Local Forum
36	Crop establishment under marginal conditions - moisture, stubble, precision seeding, discs, chemicals	New issue captured at 2017 Local Forum
38	The nitrogen supply of sandy soils is being over-estimated	Issue identified by RCSN
39	Populating the Flower Power Decision support tool with varieties and locations relevant to the GRDC Southern Region will help mitigate frost risk	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
39	Access to regional soil descriptions would help define management zones in variable soil landscapes	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
41	Control of grasses in cereal based pastures creates a feed deficit at certain time of the year	Issue identified by RCSN
41	Growers are concerned that the erosion risk of bare tramlines may outweigh the benefits of reducing compaction in sandy soils	Issue identified by RCSN
43	Is there an opportunity to increase the productivity and profitability of shallow calcareous soils?	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
43	There is limited choice of legume pasture species adapted to the low rainfall zone	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
43	Do more intensive cropping systems require greater micro-nutrient inputs?	Issue identified by RCSN
46	Overcoming highly alkaline and saline sub-soil constraints would increase rooting depth and access to plant available water	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
47	The risk of wind erosion due to inadequate ground cover constrains the use of legumes in low rainfall environments	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
47	Is regular use of in-furrow fungicides changing soil microbiology and increasing <i>Pratylenchus neglectus</i> populations	Issue identified by RCSN
47	There is limited data on the nutrient use efficiency of calcareous soils	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
47	Mice – improved options that provide effective and long term control of populations	New issue captured at 2017 Local Forum
51	Growers are unaware of recently developed techniques to improve common white snail control and off-label product use is occurring	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum

51	Sodic soils are not profitable in low rainfall zones	Issue identified by RCSN
51	Variety specific agronomy for irrigated crops	New issue captured at 2017 Local Forum
54	The potential for improved profitability from retaining more stubble by investing in stripper front disc seeder technology needs to be quantified	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
54	Soaks and seeps	New issue captured at 2017 Local Forum
56	Powdery mildew is reducing medic production	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
57	Is there potential to use alternative crops such as safflower as a viable rotation option for the low rainfall zone	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
58	Irrigated high value crops could improve profitability of low rainfall zone growers who have access to water for irrigation	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum

Table 4 - List and source of identified issues (opportunities and constraints) which have the greatest impact on the profitability of growers in the medium rainfall zone of the Southern Region

August 2017

Rank No.	Title	Source of issue
1	Nitrogen decision-making – technology to measure nitrogen in real-time and improved nitrogen budgeting tools, better rules of thumb for nitrogen (N) mineralisation, N budgeting and management and improved N use efficiency	Issue captured at 2017 Open Forum and previously identified by RCSN 2012-2016
2	Profit focused cost and productivity management can increase profit	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
3	High value pulse and legume varieties (e.g. lentils and chickpeas) bred for a wider range of soil types and rainfall zones will improve farm profitability on a broader scale	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
3	Long term no-till cropping farms may not have the infrastructure, tools or knowledge to effectively integrate livestock into the business	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
5	Level of knowledge and skill of advisers, farmers and staff is critical to the profitability, risk management and/or compliance of farm businesses	Issue captured within an existing issue identified by RCSN and captured from 2017 Local Forum
6	Efficacy of glyphosate is declining due to over-use and increased incidence of glyphosate resistant weeds	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
6	Stubble retention has increased the risk of economic damage from pests including but not limited to insects (e.g. lucerne flea), slugs, snails and mice	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
6	Using soil moisture information to make better tactical management decisions to optimise the use of plant available water	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
9	Variability in seed supply and limited choice in canola varieties, particularly high yielding open pollinated varieties with durable disease resistance, increases production risk, compromises weed control and herbicide residue management and reduces profitability	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
10	Cost effective non chemical weed control systems such as robotic weeders in broadacre crops will prolong the life of important herbicide chemistry such as glyphosate and minimise the economic impact of difficult to control weed species such as fleabane	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
10	Updated variety specific agronomy packages (VSAPs) to ensure successful adoption of pulses	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016

12	The current processes for pesticide legislation and governance within APVMA restrict timely access to pesticides and negatively impact on crop production and profit	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
13	Increased seasonal climate variability creates extremely contrasting growing seasons and requires adaptive, agile and flexible management options to optimise yield and maximise profit including but not limited to a "menu" of crop species and cultivars	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
13	Cereal diseases - genetic solutions and integrated management of Yellow Leaf Spot (YLS), Eyespot, Septoria tritici blotch and Leaf Rust	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
15	Growers cannot easily predict the likelihood of pest or disease incursions for planning and management purposes	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
16	Spatial monitoring of farms with sensor technology and digital platforms may improve crop scouting efficiencies and enable site specific management of issues (crop nutrition, weed control, pest control)	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
16	The continual breakdown of genetic resistance to blackleg in canola impacts on yield and profit of canola	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
18	Which is the more economically sustainable option in high land price areas - a crop rotation dominated by high value crops or a more balanced rotation with a mix of cereals, pulses and other land use options?	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
18	Over reliance on chemicals is causing reduced sensitivity and the development of herbicide, insecticide and fungicide resistance	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
18	Nitrogen requirements to maximise profitability of wheat and canola in a long term no till system are not well understood	New issue captured at 2017 Local Forum
21	Summer weed spraying in conditions conducive to inversions and/or with inappropriate spray quality (droplet size) creates a high risk of drift and off-target damage (e.g. vines, tomatoes and cotton)	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
21	Canola variety specific agronomy packages (VSAP) to optimise yield potential and maximise profit	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
21	Limited influence on barley variety development which may lead to a lack of varietal choice	Issue identified by RCSN
21	Soil residual herbicide used to control weeds in fence lines and "voids" can damage vegetation if they "move" through the soil from the target area	New issue captured at 2017 Local Forum
24	Opportunity to improve the mitigation and management of frost risk via pre-sowing risk assessment, new monitoring tools, better frost identification skills and group learning	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
24	Sub-soil constraints — understanding how acidity, sodicity, nutrients and structure limit yield; quantifying the economic impact of amelioration techniques, genetic advancements, soil amelioration and drainage strategies to reduce the impact of waterlogging	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
26	Harvester set-up to increase efficiency, effectiveness and reduce losses	New issue captured at 2017 Local Forum
26	What are the practical strategies that can make best use of precision agriculture data and technology to maximise profit by reducing or reallocating costs and or increasing yields	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
26	Pre-emergent herbicides do not work effectively in heavy stubbles	Issue identified by RCSN

29	Registration of short residual imi-herbicides to control problem weeds in lentils reduces the risk of herbicide residue damage in cereals and the off-label use of other short residual group B herbicides in lentils	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
30	Vetch variety improvement and grain market development will enhance profitability of farms with soil types not suitable for lentils	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
30	Profit from cereals sown on early autumn rainfall events could be enhanced by clearly defined management packages including variety selection, canopy management and crop protection strategies.	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
32	Growers and advisers cannot make informed decisions about adopting a new variety as non-biased NVT data is not easily accessible until after the variety is released	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
33	Building the skills and capacity of growers and succession planning for RD&E expertise	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
33	The commercial structure of plant breeding in Australia is leading to monopolies and reducing customer choice in varieties	Issue identified by RCSN
35	Precision seeding to improve crop establishment, yield and profitability	New issue captured at 2017 Local Forum
36	Soil health – increasing organic matter to address declining levels and consequences, understanding the impact of cover crops, controlled traffic farming and crop inputs on soil biology and soil health	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
36	Growers can optimise price received by improving or accessing grain marketing skills and knowledge in grain marketing	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
36	More effective extension of valuable research and development findings to enable on-farm practice change	New issue captured at 2017 Local Forum
36	Poor understanding of soil water use in pulses leads to poor yield predictions	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
40	The accumulation of herbicides residues in soils (e.g. low organic carbon sands) over several seasons may be impact crop health and yield and restricting crop choice	New issue captured at 2017 Local Forum
40	Issues impacting on yield and profitability of lupins including, black pod syndrome and phomopsis	Issue identified by RCSN
42	Cover crops, green manuring and brown manuring as an option to increase the inclusion of legumes and other broadleaf species for more sustainable and diverse farming systems	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
42	Foliar diseases of oats reduce hay yield and quality	Issue identified by RCSN
42	There is a paucity of grazing withholding periods for common chemicals used on cereals	Issue identified by RCSN
42	Lack of grass control options in pulses (faba beans and others)	Issue identified by RCSN
46	Quantify nutrition (N, P,K, S, Cu, Zn and Mn) responses for cereals in medium rainfall environments and a range of crop types including pulses, canola and cereals	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
46	Conical snails reduce harvest efficiency, contaminate grain and reduce marketability	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
48	Sclerotinia in pulses and canola requires an integrated approach to management including silo quick tests, biocontrol options and guidelines	Issue identified by RCSN
49	The efficacy of zinc phosphide wheat bait on mice at registered rates is not providing adequate control and late season control strategies are unclear	Issue captured within an existing issue identified by RCSN and 2017 Local Forum

49	Crop yields are declining on non-wetting sands after several years in a no-till cropping system	Issue identified by RCSN
49	Enabling flexible phenology in cereals through chemical application or breeding to match flowering date to emergence date and seasonal conditions will mitigate the risks associated with dry sowing (e.g. heat stress or frost)	Issue identified by RCSN
52	Uncertainty in the rotational break time required for Eye Spot inoculum breakdown in stubble, reduces confidence and leads to prophylactic fungicide applications in cereals	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
53	Updated variety-specific agronomy packages (VSAPs) to increase durum yields	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
54	Too much information prevents the message from being received	New issue captured at 2017 Local Forum
54	Minimising downside/maximising upside	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
56	Effectiveness of liquid systems to deliver crop inputs - granular versus liquid	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
57	High pH sub-soils and compaction limits canola yield potential	Issue identified by RCSN
58	Solutions including drainage to reduce the impact of waterlogging on trafficability, management and crop performance	Issue identified by RCSN
59	The risk of growing lentils in a close rotation (high intensity) could be reduced with targeted management guidelines to address the main risks	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
60	Practical engineering solutions are required to cost effectively utilise animal waste, lime and gypsum for sub-soil amelioration via injection	Issue identified by RCSN
60	It is difficult to estimate plant available water (and yield potential) in soils with limestone or rubble subsoil	Issue identified by RCSN
62	Quantifying "unusual frost" damage in grain growing areas near wind farms	New issue submitted by grain grower
63	Lack of independent product evaluation	New issue captured at 2017 Local Forum
63	Growers have difficulty controlling Blanket weed (Toadflax) after wet years with standard summer weed control herbicide mixes	Issue identified by RCSN
65	Multi-peril crop insurance - is it peril or a pearl?	New issue captured at 2017 Local Forum
66	Irrigated cropping requires a different set of crop selection criteria to optimise production and profit on irrigation	New issue captured at 2017 Local Forum
67	Perennial crops - Is there a place in broadacre dryland cropping systems?	New issue captured at 2017 Local Forum

Table 5 - List and source of identified issues (opportunities and constraints) which have the greatest impact on the profitability of growers in the high rainfall zone of the Southern Region

August 2017

Rank No.	Title	Source of issue
1	Identify and develop high value grain crops to complement existing common crops	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
2	Improved assessment tools (site specific and spatially referenced) to better inform tactical N management decisions	Issue identified by RCSN



2	Enhanced accuracy of N management decisions	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
4	Poor harvester efficiency (including grain loss) is impacting on profitability.	New issue captured at 2017 Local Forum
5	Improved management packages for multi-herbicide resistant annual ryegrass	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
6	Determine practices (rotations) to reduce the high input costs required to grow high yield wheat	Issue identified by RCSN
7	Methods to reduce reliance on foliar and in furrow fungicides	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
8	Disease management package for sclerotinia, blackleg and powdery mildew in canola	Issue identified by RCSN
8	Develop harvest and weed seed management techniques to deal with late germinating annual ryegrass	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
8	Develop new (non-genetically modified) canola varieties	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
11	Accelerated development of waterlogging tolerant barley	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
11	More accurate weather forecasts	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
13	Improved establishment of canola	New issue captured at 2017 Local Forum
14	Determine how optical sensors can be used profitably to inform decision making	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
14	Extracting greater 'value' from spatially referenced data which is already being collected	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
14	Knowledge and application of economic analysis to make decisions around inputs, capital and scale	New issue captured at 2017 Local Forum
14	Enable quicker access to long season, Northern Hemisphere varieties with superior leaf resistance	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
18	Increasing labour demands with cropping systems	New issue captured at 2017 Local Forum
19	Improved grain marketing through expanded or differentiated markets (faba beans, cereals) and greater grower marketing skills advice to get a better price	New issue captured at 2017 Local Forum
20	Improving phone/internet services/speeds in rural areas to enable access to services	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
21	Optimise fertiliser use by applying the 4Rs (right source, rate, time and place) at a regional level	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
21	Maintain and enhance research and advisory capacity so growers can access independent advice	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
21	Managing farmer health	New issue captured at 2017 Local Forum
21	Identify the reasons for inconsistent nodulation (and subsequent yield loss) in faba and broad beans	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
21	Determine if cover crops have a profitable impact on soil health	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
26	Determine sustainable and profitable management strategies of high volume stubbles	Issue captured within an existing issue identified by RCSN and 2017 Local Forum

27	Determine practices to alleviate chronic and acute waterlogging	Issue identified by RCSN
27	Improving soil water-holding capacity (WHC)	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
27	Loss of chemicals and the need for greater grower advocacy around the retention of various herbicides and pesticides	New issue captured at 2017 Local Forum
30	Develop a faba bean and broad bean agronomy package	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
30	Develop appropriate recovery strategies (mainly N application) for waterlogged crops	Issue identified by RCSN
30	Identify the species, varieties and agronomy to grow a profitable summer crop	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
33	Gaining faster access to pesticides used in Europe and the US	New issue captured at 2017 Local Forum
33	Agronomy and varieties to increase energy in grain (for domestic feeds)	New issue captured at 2017 Local Forum
35	Manage sub-soil (5-15cm) acidity on land with good surface lime application history	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
36	Approaches to improve poor water use efficiency (WUE) – hyper-yields, 3 crops in 2 years	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
37	Early prediction of disease outbreaks in pulse to inform fungicide management decisions	Issue identified by RCSN
38	Develop practices to reduce electricity costs in irrigation	Issue captured within an existing issue identified by RCSN and 2017 Local Forum
39	Lack of grower attendance at local events	New issue captured at 2017 Local Forum
40	Quantify the impact of powdery mildew on canola yields in the lower South East of SA, Tasmania and Gippsland	New issue captured at 2017 Local Forum
41	Identify a 'pillar crop' to build a sustainable and profitable farming rotation	Issue identified by RCSN
42	The pros and cons of disc seeder versus tyne seeders	New issue captured at 2017 Local Forum
43	Enhanced spray application (wet or bulky)	New issue captured at 2017 Local Forum
44	Potential to use plant growth regulators (PGR) for crop management (canopy & grain quality)	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
45	Development of genetically modified (GM) crops for yield and enhanced management options	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
46	Register existing chemicals for use with shielded sprayers	Issue identified by RCSN
47	Method to calculate nitrogen loss when soils are above field capacity	Issue identified by RCSN
48	Understanding how climate change will affect the incidence of waterlogging	Issue captured at 2017 Local Forum and previously identified by RCSN 2012-2016
49	Managing drainage beyond the farm gate	New issue captured at 2017 Local Forum

A number of identified issues which were outside of the GRDC's mandate, have since been referred to relevant organisations, e.g. Grain Growers Limited, Grain Producers Australia, Grain Trade Australia, Victorian Farmers Federation, Grain Producers SA and state government agencies. Issues referred to relevant organisations are listed below –

List of issues captured at the GRDC Local Forums which were referred to relevant organisations

- freight costs
- limited segregation and sites which increase the cost of delivering faba beans, lentils and chickpeas on the Eyre Peninsula
- uncertainty and unpredictability of income – no or low tax pool of money as an exceptional circumstances response
- lack of local and unskilled workforces – training required
- promoting the opportunity for feedlots to create local feed markets
- opportunity to develop a local hay market (for the Victorian Mallee)
- access to GM crops which will provide improved traits and varieties
- registration of chemicals
- registrations of herbicides and use pattern for herbicide tolerant pulse varieties
- End Point Royalty (EPR) – equity
- risk of fires for harvesting lentils and the consequence for insurance – exclusions and premiums
- improved internet
- changing receival standards
- changing receival standards – moving the goal posts and change every year
- delay between sample and result for test weights
- new sources of gypsum
- cloud seeding
- security of supply of agrichemical products
- security of supply of chemical products
- greater grower advocacy around the retention of various agrichemicals
- managing drainage beyond the farm gate
- access to new fungicide and herbicide options from overseas
- gaining faster access to pesticides used in Europe and the US
- maintaining the grain industry 'clean and green' integrity
- compliance to maintain the grains industry clean and green image of product and premiums
- telephone and internet coverage
- socialisation of agriculture - Social media – filter and manage
- drainage on a regional scale
- promoting the SE as a cropping region

Evaluation

More than 230 individuals attended in the forums and a summary of the 197 evaluation surveys are listed below –

- 79 % of respondents rated the effectiveness of forums to enable growers and industry stakeholders to check and identify important issues that affect grower profitability and need to be considered by the GRDC as good or excellent
- 76% of respondents rated the effectiveness of the forum to enable growers and industry representatives to learn about and have input into the future R,D&E of the focus topics as good or excellent
- 68% of respondents rated the effectiveness of the forums to enable growers and industry stakeholders to hear about a selection of other GRDC R,D&E investments as good or excellent
- 76% of participants rated the forums as good or excellent in meeting their expectations

Appendix 1 – Issues captured from GRDC Local Forums - Low Rainfall Zone

Categories	Issues
Varieties and Genetic Technologies	<ul style="list-style-type: none"> <li>• improved legume varieties for low rainfall districts - lentils, peas and lupins</li> <li>• improved legumes (crop and pastures) for the low rainfall areas</li> <li>• lupin breeding for tolerance of free lime</li> <li>• pea varieties which that don't bare out the soil</li> <li>• herbicide tolerance in cereals – Clearfield and Roundup Ready technologies</li> <li>• access to GM technology and varieties</li> </ul>

Soils and nutrition	<ul style="list-style-type: none"> <li>• sandy soils - crop growth and establishment, cover crops and amelioration</li> <li>• soaks and seeps – increasing areas affected and large areas at risk</li> <li>• moisture probes - understanding plant available water (PAW) for decision-making</li> <li>• nitrogen management decisions - cost vs returns, N contributions from legume pastures</li> <li>• under-supply of nitrogen limits yield and profit but increases risk – how make good decisions</li> <li>• improved establishment and early crop growth on sandy soils</li> <li>• soil amelioration – how and where is it profitable</li> <li>• sandy soils in particular but also heavier soils</li> <li>• understand effects of nitrogen management on long term soil fertility</li> <li>• sub-soil constraints – alkalinity</li> <li>• legume pasture options to supply 25% of nitrogen supply</li> <li>• establishment of crops on sandy soils</li> <li>• improved productivity of shallow calcareous soils</li> <li>• stripper fronts and disc seeders for variable seasons</li> <li>• nitrogen management – cost versus return to make decisions</li> </ul>
Farming Systems and Agronomy	<ul style="list-style-type: none"> <li>• crop establishment under marginal conditions - moisture, stubble, precision seeding, disc seeders and chemical residues</li> <li>• variety specific agronomy packages for irrigated crops</li> <li>• improved integration of livestock - flexibility, economics and animal health</li> <li>• profitable rotations</li> <li>• lentils as an options to increase diversity and profitability of rotations</li> <li>• increasing cost of production and risk</li> <li>• long term sustainability of rotations and farming systems</li> <li>• reliable crop establishment under dry conditions especially with stubble retention</li> <li>• improved integration of livestock – flexibility, economics and animal health</li> <li>• lentil expansion – boosting skills and confidence of growers and advisors, understanding and managing risk and varietal improvement</li> <li>• need for free nitrogen in the system without medic – profitable break crop and rotation</li> <li>• machinery and seeding systems – practical adoption of precision seeding systems and disc versus point systems</li> <li>• efficacy and risk of chemical with disc systems</li> <li>• legumes</li> <li>• sustainable and profitable rotations</li> <li>• pasture management to avoid problems and maximise benefits in crops and part of the system and tool manage weeds</li> <li>• potential of cover crops on sandy soils</li> <li>• reassess early time of sowing to understand the compromise and effects on weeds</li> <li>• medics are not a profitable crop</li> </ul>
Crop Protection – weeds, pests and diseases	<ul style="list-style-type: none"> <li>• Barley grass and Brome grass control</li> <li>• herbicides - resistance, Group B alternatives, tolerance of cereal to CL and RR</li> <li>• managing insects - forecasts and alerts, new pests, economic thresholds, new insecticide groups and controlling resistant populations</li> <li>• new methods for weed control e.g. microwaves</li> <li>• better information about chemical control of mice, insects and weeds and effects on the environment</li> <li>• biological control agents for snails</li> <li>• snails are increasing – using carbendazim as a control option</li> <li>• mice</li> <li>• Rhizoctonia</li> <li>• registration of carbendazim to control snails</li> <li>• biological control agents for snails</li> <li>• forecasting and predicting RWA</li> <li>• alternative options to control Redlegged Earthmite given OP and SP resistance</li> <li>• cost-effective chemical control options for Barley Grass for low rainfall areas</li> <li>• controlling herbicide resistant Indian Hedge Mustard</li> </ul>

	<ul style="list-style-type: none"> <li>• long term effects of Gaucho® as a seed dressing and in-furrow on beneficial species</li> <li>• snails – increasing problem</li> <li>• Russian Wheat Aphid (RWA) – what are the economic thresholds for low rainfall districts</li> <li>• effective non-chemical strategies</li> <li>• better understand thresholds for pests and diseases particularly for season with dry and sharp finishes</li> <li>• snail control – carbendazim – how, when and why?</li> <li>• herbicide resistance – Barley and Brome Grass</li> <li>• managing new pests and having thresholds for low rainfall districts</li> <li>• farming without glyphosate</li> <li>• registration of chemicals</li> <li>• Barley Grass management</li> <li>• powdery mildew in medic</li> <li>• insect thresholds</li> <li>• better information about the effects of chemical control strategies for mice, weeds and insect on ecology and environment</li> <li>• improved tools and systems to predict pests and diseases</li> <li>• herbicide and insecticide residues – effects on soil biology and soils and systems with low microbial activity</li> <li>• cost of weed control – Barley and Brome Grass and to a lesser extent Annual Ryegrass</li> <li>• lack of chemical control options outside Group B</li> </ul>
Climate and Frost	<ul style="list-style-type: none"> <li>• frost – tools to have confidence in early assessment and making decisions</li> <li>• accurate seasonal forecasts</li> <li>• models or tools to understand variability and scenarios of seasons to plan and make decisions</li> <li>• pre-season rainfall deciles predictions for up-coming season</li> <li>• improved seasonal forecasts</li> <li>• season forecasts and models</li> <li>• frost</li> </ul>
Building Skills and Capacity	<ul style="list-style-type: none"> <li>• lack of local and unskilled workforces – training required</li> <li>• human resources – building resilience and skills for decision-making</li> <li>• tools and skills to look at opportunities and make decisions</li> <li>• capacity building for young growers around soils and agronomy e.g. TopCrop and livestock management</li> <li>• maintaining R,D&amp;E capacity in the low rainfall areas</li> </ul>
Farm Business Management	<ul style="list-style-type: none"> <li>• investment in machinery – how to make decisions based on economics</li> <li>• benchmarks for debt for investment in machinery</li> <li>• cost of machinery is significant</li> <li>• people management is critical to the success of large farm businesses</li> <li>• farm business management skills</li> <li>• farm financial business management – individual assessment and strategies</li> <li>• pathways for entry into farming – business models – share-farming, leasing, ownership – risk management and attitude – At Risk model by Cam Nicholson</li> <li>• benchmarking data readily available to measure business performance available for all growers</li> <li>• toys or tools – sorting out the economics of technology</li> <li>• economics of capital investment in machinery as a trade-off for labour</li> </ul>
Precision Agriculture	<ul style="list-style-type: none"> <li>• robotics</li> </ul>
Miscellaneous	<ul style="list-style-type: none"> <li>• freight costs</li> <li>• limited segregation and sites which increase the cost of delivering faba beans, lentils and chickpeas on the Eyre Peninsula</li> <li>• uncertainty and unpredictability of income – no or low tax pool of money as an exceptional circumstances response</li> <li>• information overload</li> <li>• lack of local and skilled workforce – training required</li> </ul>

Appendix 2 – Issues captured from GRDC Local Forums - Medium Rainfall Zone

Categories	Issues
<p>Varieties and Genetic Technologies</p>	<ul style="list-style-type: none"> <li>• alternative crops – new options e.g. chickpeas</li> <li>• alternative high value pulses</li> <li>• drought and frost tolerance</li> <li>• drought and frost tolerance for varieties</li> <li>• information on “trade-off” characteristics of occasional problems of “best” yielding varieties e.g. head retention</li> <li>• new chickpea varieties</li> <li>• NVT testing - objective data and variety performance and traits</li> <li>• breeding for disease resistance – rust and Net Blotch etc.</li> <li>• breeding for pests - lucerne flea</li> <li>• developing greater resistance for major diseases in varieties to avoid relying upon fungicides</li> <li>• herbicide tolerance of varieties as a weed management tool</li> <li>• improved varieties - herbicide tolerance</li> <li>• alternative to cereals that are more reliable in poor years</li> <li>• frost tolerant crops</li> <li>• CCN resistant varieties</li> <li>• long season wheat varieties</li> <li>• robust and adaptable varieties for early sowing opportunities</li> <li>• varieties for early sowing</li> <li>• duo-culture cropping - crops and/or crops and pastures</li> <li>• oats - breeding and agronomy</li> <li>• perennial crops – opportunity and options</li> <li>• perennial crops that can be established in thick stubbles</li> <li>• access to GM crops which will provide improved traits and varieties</li> </ul>
<p>Soils and Nutrition</p>	<ul style="list-style-type: none"> <li>• sub-soil constraints limit bucket size</li> <li>• improve nutrient use efficiency of varieties for N, P, Zn and Cu</li> <li>• nitrogen fixing cereals or co-cropping options</li> <li>• increased utilisation of N, P and S</li> <li>• soaks and salinity</li> <li>• sulphur requirement for canola</li> <li>• effects of farming practices on soil biology what is the financial impact</li> <li>• gypsum to not only provide sulphur but more importantly and not recognised are the benefits for soil structure</li> <li>• improved nutrient, particularly nitrogen efficiency</li> <li>• nutrition for local soil types and conditions based on local trial information</li> <li>• nutrition packages for lentils and other pulses</li> <li>• soil acidification</li> <li>• soils - profiling to identify and adapt to maximise performance and production</li> <li>• tools to measure and map PAW across property and</li> <li>• comparison of fertiliser delivery – e.g. liquid versus granular</li> <li>• soil health and the effects of inputs</li> <li>• soil biology improvements - cover crops, seeding systems and control traffic</li> </ul>
<p>Farming Systems and Agronomy</p>	<ul style="list-style-type: none"> <li>• mixed farming – better integrating livestock and cropping enterprises</li> <li>• mixed farming systems – grain and graze, mix/ratio, integration to optimise profit and stubble management</li> <li>• pulse agronomy</li> <li>• sustainable rotations – comparison to quantify effects on nutrition, weeds, disease, pests and comparison of financial returns</li> <li>• lack of rotational diversity leads to increased cost of production but the alternative often increase risk</li> <li>• improved crop establishment – quantify impacts of – (i) use of pre-emergent chemistry incorporated by sowing (ii) press wheel technology, (iii) dry sowing, (iv) lentil cultivar</li> </ul>

	<ul style="list-style-type: none"> <li>• canola establishment</li> <li>• deplorable state of pastures</li> <li>• precision seeding</li> <li>• agronomy packages for canola, wheat, faba bean and durum</li> <li>• cover crops - fact or fiction</li> <li>• crop selection for irrigated cropping</li> <li>• header setup to increase efficiency and effectiveness</li> <li>• safflower</li> </ul>
Crop Protection – weeds, pests and diseases	<ul style="list-style-type: none"> <li>• weed and herbicide resistance management – e.g. ryegrass, brome grass, marshmallows and Bifora</li> <li>• current mice control strategies cannot effectively manage populations which are continuing to increase over time</li> <li>• Eye Spot</li> <li>• glyphosate resistance</li> <li>• potential loss of glyphosate due regulatory changes and increasing resistance</li> <li>• herbicide efficacy in high stubble loads</li> <li>• herbicide labels for pulses - lack of information for sandy soils and crop damage</li> <li>• management of Sclerotinia which is generally only an intermittent seasonal issue</li> <li>• pesticide registrations</li> <li>• registration of products – herbicides and fungicide, particularly for pulses</li> <li>• registrations of agrichemicals for pulses</li> <li>• regulatory changes which limits availability of agrichemical options</li> <li>• tools to predict pests earlier</li> <li>• biological control options as part of an IPM strategy</li> <li>• greater adoption of IPM approach and reduce insecticide use</li> <li>• highly dependent on chemicals to manage weeds, pests and diseases</li> <li>• How do we escape from the high reliance on chemicals?</li> <li>• implementing IPM principles</li> <li>• integrated weed management</li> <li>• management of green bridge to manage mice and Russian Wheat Aphid</li> <li>• novel non-chemical strategies for weeds, pests and diseases</li> <li>• reliance on agrichemicals and subsequent resistance (weeds, pests and diseases)</li> <li>• breakdown of imi tolerant crops due to herbicide resistant weeds</li> <li>• control options for hard to kill weeds e.g. Marshmallow</li> <li>• control options for Prickly Lettuce, Melilotus and Marshmallow</li> <li>• increasing populations of mice</li> <li>• mice</li> <li>• mice - product availability</li> <li>• mice numbers are increasing as our farming systems enable an increasing base population to be maintained between season and then rapidly build and explode when conditions are favourable</li> <li>• understand triggers for outbreak in mice numbers e.g. 1993 bad year for mice following wet spring, split grain, soft ground for mice burrows and good shelter - conditions in 2017 are the same</li> <li>• independent product evaluation to compare efficacy</li> <li>• improved management of snails to ensure market access</li> <li>• NEW chemical and non-chemical control products and practices are essential to managing snails</li> <li>• ineffective control of snails that threatens access to markets and limits the marketability of contaminated grain i.e. where exceed delivery standards</li> <li>• potential for in-harvester snail rollers</li> <li>• weed management is central to rotations and management</li> <li>• increasing pest pressure given stubble retained systems – snails, slugs, mice and insect</li> <li>• standards and interpretation of seed tests for viruses of lentils</li> </ul>
Climate and Frost	<ul style="list-style-type: none"> <li>• frost</li> <li>• National Frost Initiative - lack of on-farm management solutions</li> <li>• flowering models - sowing time to balance the risk of heat and frost stress</li> <li>• flowering models (as per WA) for cereals and pulses</li> </ul>

	<ul style="list-style-type: none"> <li>• confidence in weather forecasting to plan and make decisions</li> <li>• early weather prediction models</li> <li>• improved climate forecasting models</li> <li>• improved medium range weather forecasts</li> <li>• improved seasonal forecasts</li> <li>• long term weather forecasts to predict seasonal conditions further in advance so that the information can be acted upon</li> <li>• seasonal forecasts</li> <li>• seasonal variability and responding to forecasts</li> </ul>
Building Skills and Capacity	<ul style="list-style-type: none"> <li>• capabilities of growers and advisor</li> <li>• skills to combine agronomy and financial aspects of business – sharing information within a team</li> <li>• training accountants in basic agronomy</li> <li>• training agronomists in farm economic management</li> <li>• up-skilling new farmers</li> <li>• coaching for improved planning and timing of operations</li> <li>• encourage information exchange to see opportunities to do things better or differently</li> <li>• TopCrop focus group approach for farm business extension and training e.g. investment in machinery and technology</li> <li>• tools to help manage farm business in a variable climate through mentoring and/or farmer groups</li> <li>• extension of current research</li> <li>• extension of data and information from projects that slips through the cracks</li> <li>• greater extension effort to increase adoption of best management practices</li> <li>• information overload - simplify the complexity</li> <li>• encourage information exchange to see opportunities to do things better or differently</li> <li>• extension of current research</li> <li>• extension of data and information from projects that slips through the cracks</li> <li>• greater extension effort to increase adoption of best management practices</li> <li>• information overload - simplify the complexity</li> <li>• socialisation of agriculture - Social media – filter and manage</li> </ul>
Farm Business Management	<ul style="list-style-type: none"> <li>• farm business skills</li> <li>• cost-effective management – maximising return on investment for crop inputs</li> <li>• gap in farmers knowing profit drives</li> <li>• identify opportunities to reduce cost of production and increase profits</li> <li>• profitability requires cost control</li> <li>• farm business management – complexity requires interpretation and simple message</li> <li>• support for making machinery investment decisions</li> <li>• building teams to ensure skills and knowledge for management of farm businesses</li> <li>• grain marketing – opportunity for price and profit but massive swings in pricing, which makes it difficult to pick</li> <li>• grain marketing – skills and advice</li> <li>• marketing – What is right and wrong – independent expert opinions</li> <li>• multi-peril crop insurance - changing goal posts</li> <li>• multi-peril crop insurance</li> <li>• succession planning</li> <li>• succession planning – communication between generations</li> <li>• TopCrop focus group approach for farm business extension and training e.g. investment in machinery and technology</li> <li>• tools to help manage farm business in a variable climate through mentoring and/or farmer groups</li> <li>• how to farm with lower risk without being unable to take advantage of good years</li> <li>• how to manage risk given different attitudes to risk</li> <li>• capturing upside without the penalty from downsides</li> <li>• how to farm with lower risk without being unable to take advantage of good years</li> <li>• how to manage risk given different attitudes to risk</li> </ul>
Big Data and	<ul style="list-style-type: none"> <li>• real-time NVDI at 10am</li> </ul>



Precision Agriculture	<ul style="list-style-type: none"> <li>• remote sensing - making it work and profitable</li> <li>• remote sensing technologies theories- interpretation for management decisions and is it profitable for paddock scale</li> <li>• use of data for decision-making</li> <li>• using precision agriculture technology and tools to measure and manage protein</li> <li>• interpreting and translating data to use for decisions</li> <li>• finding, interpreting and translating information for farm and paddocks that can be applied to increase profitability</li> </ul>
Miscellaneous	<ul style="list-style-type: none"> <li>• End Point Royalty (EPR) – equity</li> <li>• increase size and share of the lentil market</li> <li>• increased marketability of faba beans</li> <li>• registrations of herbicides and use pattern for herbicide tolerant pulse varieties</li> <li>• lack of skilled labour</li> <li>• resource availability to be flexible and respond</li> <li>• research results are “hand-cuffed” because of chemical legislation(s)</li> <li>• risk of fires for harvesting lentils and the consequence for insurance – exclusions and premiums</li> <li>• improved internet</li> <li>• changing receival standards</li> <li>• changing receival standards – moving the goal posts and change every year</li> <li>• delay between sample and result for test weights</li> <li>• new sources of gypsum</li> <li>• cloud seeding</li> <li>• security of supply of agrichemical products</li> <li>• security of supply of chemical products</li> </ul>

Appendix 3 – Issues captured from GRDC Local Forums - High Rainfall Zone

Categories	Issues
Varieties and Genetic Technologies	<ul style="list-style-type: none"> <li>• traits for pest tolerance and control</li> <li>• matching cereal varieties for markets</li> <li>• fast track introduction of existing high yielding crop varieties</li> <li>• varieties, systems and agronomy packages for earlier sowing</li> <li>• high yielding variety options for high rainfall environments</li> <li>• summer and irrigated crop options</li> <li>• new legume break crops</li> <li>• alternative legumes for high rainfall zone</li> <li>• improved genetic disease resistance of crop varieties</li> <li>• multi-purpose pasture and crop options</li> <li>• crop options and rotations and options to improve less productive soils</li> <li>• high value summer and winter crops</li> </ul>
Soils and Nutrition	<ul style="list-style-type: none"> <li>• accessing and interpreting soil moisture information to make decisions</li> <li>• reliance on urea – alternative options for in-season supply of nitrogen requirements</li> <li>• water and nutrition management of grey shallow and alkaline soils</li> <li>• opportunities to increase water use efficiency and yield potential in the high rainfall zone</li> <li>• optimum delivery of trace elements</li> <li>• calculating gypsum requirements for irrigated soils</li> <li>• managing waterlogged crops especially beans</li> <li>• nutrition packages and fertiliser requirements for high stubble load situations</li> <li>• seed coatings to deliver nutrients</li> <li>• measuring and timing of nutrients in retained stubble systems</li> <li>• nitrogen requirements and strategy</li> <li>• in-furrow delivery of nutrients</li> <li>• further research to make better fertiliser decisions</li> <li>• local trials to validate research for local environment and soils</li> </ul>

Farming Systems and Agronomy	<ul style="list-style-type: none"> <li>• alternative crop or pasture legume break crops</li> <li>• quantify the impacts of cover crops across rotations/seasons on profit</li> <li>• grain and graze for mixed farming systems to manage weeds</li> <li>• opportunity for better manage break crops to maximise weed control</li> <li>• variety specific agronomy packages, including nutrient and disease management to maximise profit</li> <li>• agronomy packages to achieve best results and market requirements</li> <li>• maximising returns from inputs</li> <li>• time of sowing and disease management</li> <li>• raised bed farming</li> <li>• green manuring crops</li> <li>• when beans get wet and waterlogged how can we make them grow and tiller as we do with cereals by applying urea</li> <li>• plant growth regulators (PGRs) as a tool to manage crop canopy and improve grain quality</li> <li>• crop establishment and profitability of disc seeders versus tyne seeders</li> <li>• technical independent knowledge to reduce harvest losses, improve harvest efficiency and weed seed destruction</li> <li>• plant growth regulators</li> <li>• growth regulators in canola and other crops to reducing lodging</li> </ul>
Crop Protection – weeds, pests and diseases	<ul style="list-style-type: none"> <li>• reliance on chemicals to manage weeds, pests and diseases and the need to develop alternative non-chemical tools</li> <li>• independent testing of products to compare efficacy</li> <li>• appropriate use of fungicides to maximise effectiveness</li> <li>• awareness and management of new pests</li> <li>• effectiveness and access to fungicides</li> <li>• identifying and integrated management of emerging weeds</li> <li>• develop alternative non-chemical control options for weeds, pests and diseases</li> <li>• snail and slug control</li> <li>• fungicide coverage in dense canopies to maximise effectiveness</li> <li>• glyphosate resistance</li> <li>• control of Bedstraw</li> <li>• fungicide strategies for optimum yield</li> <li>• control of herbicide resistant Annual Ryegrass</li> <li>• spray technology to maximise effectiveness</li> <li>• early identification of the next generation of resistant weeds that are presently being controlled with single action herbicides</li> <li>• access to new fungicide and herbicide options from overseas</li> <li>• gaining faster access to pesticides used in Europe and the US</li> </ul>
Climate and Frost	<ul style="list-style-type: none"> <li>• climate forecasts - accuracy and interpretation</li> <li>• understanding effects of climate change</li> </ul>
Building Skills and Capacity	<ul style="list-style-type: none"> <li>• adoptions and using new technologies</li> <li>• retaining personnel in advisor roles with required skills, knowledge and experience</li> <li>• grower knowledge</li> <li>• attracting growers to training and research updates</li> <li>• experience and expertise in research - conducting and reporting trials</li> </ul>
Farm Business Management	<ul style="list-style-type: none"> <li>• economies of scale - adoption and implementation</li> <li>• grain marketing skills and advice</li> <li>• risk management skills and tools</li> </ul>
Big Data and Precision Agriculture	<ul style="list-style-type: none"> <li>• simple and user friendly tools to collect, consolidate and use data</li> <li>• opportunity for a range of uses for robots to reduce labour requirements e.g. site specific weed control</li> <li>• collating and applying data collected</li> <li>• precision agriculture</li> </ul>
Miscellaneous	<ul style="list-style-type: none"> <li>• investment in blue sky research</li> <li>• increasing labour demands with cropping systems</li> <li>• attracting skilled labour on farms</li> </ul>

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|  | <ul style="list-style-type: none"><li>• drainage on a regional scale</li><li>• expanded markets for faba beans</li><li>• mental health of farmers</li><li>• loss of chemicals due to regulatory changes</li><li>• greater grower advocacy around the retention of various agrichemicals</li><li>• managing drainage beyond the farm gate</li><li>• maintaining the grain industry 'clean and green' integrity</li><li>• compliance to maintain the grains industry clean and green image of product and premiums</li><li>• telephone and internet coverage</li><li>• promoting the SE as a cropping region</li></ul> |
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