

## GRDC Regional Cropping Solutions Network – South

### Issues (opportunities and constraints) which have the greatest impact on the profitability of growers in the low rainfall zone of the Southern Region

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Rank No.	Title
1	Potential for external societal influences to affect farmers ability to produce in an effective manner e.g. biased consumer attitudes
2	Improved pulse varieties to increase the profitability of farming systems in the low rainfall zone
3	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
4	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
5	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
5	Potential for climate change to become a significant constraint due to increasing spring heat, shorter growing seasons and possible increased frost incidence
7	Farm business management skills are essential to improving long term profitability
8	Robotics provide opportunities to increase efficiencies and profitability of farm businesses
9	New and novel methods of weed control e.g. microwaves
10	The risk (either perceived or real) of herbicide residues accumulating in sandy soils in low rainfall environments is reducing returns
11	Hard to control weeds
11	Limited knowledge, skills and experience of growers and advisers new to pulse growing increases production risk of pulses in the low rainfall zone
13	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
13	Predicting flowering time and manipulating crop development to reduce exposure during high risk periods to mitigate impact of frost
15	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
16	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
16	Opportunities to improve profit are missed as new practices are not adopted due to a lack of grower trust in small plot results
18	The downside risk of highly leveraged, high input, high crop intensity farming systems threatens the economic viability of low rainfall farm businesses

18	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
20	Economic thresholds for insect control in the low rainfall zone are poorly defined which causes the over-use of insecticides
20	The opportunity to use big data to improve grower profitability in the low rainfall zone
22	Glyphosate resistant weed populations are developing on fence lines
22	Nitrogen management decisions – value of legume contribution and cost vs returns
22	Managing insects -forecasts and alerts, new pests, thresholds, new insecticide groups and control of resistant populations
22	Barley grass and Brome grass control
26	Phenoxy herbicides - alternatives
27	Easy to use decision support tools would enable better use of objective data and reduce grower financial and production risk
28	Opportunity to improve profitability and long term management of weeds, diseases and soil fertility through better crop sequencing
29	Seed banks of problem grass weeds are increasing because harvest weed seed management is not being fully utilised
29	Local data for Russian Wheat Aphid risk factors (volunteer species, aphid flights) is scant
29	The soil nitrogen supply is declining as crop intensity increases
29	The lack of low cost open pollinated canola varieties is contributing to the reduction in canola area in the low rainfall zone
33	Widespread adoption of seed applied insecticide for Russian Wheat Aphid control may harm beneficial insects and soil microbes
33	Sandy soils - crop establishment and growth, cover crops and amelioration strategies
35	Increasing awareness of nitrogen (N) removal and cycling may improve N management, lower risk and increase profit in the low rainfall zone
36	Fertiliser toxicity
36	Better access to profit and production focused precision agriculture (PA) support would increase return on investment in PA
36	Rhizoctonia – economics of fungicides (seed dressings and in-furrow application)
39	Poorly calibrated moisture probes provide incorrect estimations of Total Available Water (TAW) and Plant Available Water Capacity (PAWC)
39	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
39	Improved integration of livestock - flexibility, economics and animal health
42	Understanding seed zone environment - vertical furrows - need confirmation
42	Crop establishment under marginal conditions - moisture, stubble, precision seeding, discs, chemicals
44	The nitrogen supply of sandy soils is being over-estimated

45	Populating the Flower Power Decision support tool with varieties and locations relevant to the GRDC Southern Region will help mitigate frost risk
45	Access to regional soil descriptions would help define management zones in variable soil landscapes
47	Farm efficiencies
48	Spot spraying
48	Control of grasses in cereal based pastures creates a feed deficit at certain time of the year
48	Growers are concerned that the erosion risk of bare tramlines may outweigh the benefits of reducing compaction in sandy soils
48	Crown rot is increasing with changed farming practices leaving stubble crowns intact and not susceptible to break down
52	Is there an opportunity to increase the productivity and profitability of shallow calcareous soils?
52	There is limited choice of legume pasture species adapted to the low rainfall zone
52	Do more intensive cropping systems require greater micro-nutrient inputs?
55	Overcoming highly alkaline and saline sub-soil constraints would increase rooting depth and access to plant available water
56	The risk of wind erosion due to inadequate ground cover constrains the use of legumes in low rainfall environments
56	Is regular use of in-furrow fungicides changing soil microbiology and increasing <i>Pratylenchus neglectus</i> populations
56	There is limited data on the nutrient use efficiency of calcareous soils
56	Mice – improved options that provide effective and long term control of populations
60	Growers are unaware of recently developed techniques to improve common white snail control and off-label product use is occurring
60	Sodic soils are not profitable in low rainfall zones
62	Variety specific agronomy for irrigated crops
63	The potential for improved profitability from retaining more stubble by investing in stripper front disc seeder technology needs to be quantified
63	Soaks and seeps
65	Powdery mildew is reducing medic production
66	Milling oats
67	Is there potential to use alternative crops such as safflower as a viable rotation option for the low rainfall zone
68	Irrigated high value crops could improve profitability of low rainfall zone growers who have access to water for irrigation