



*generating ripples
...creating change*

GrazingFutures grazier participant survey Report 2020

June 2020

Prepared by:

GR Consulting

PO Box 390

Longreach | QLD | 4730 | Australia

m +61 4379 0695

f www.facebook.com/gerryroberts.consulting

w <http://gerryroberts.com.au>

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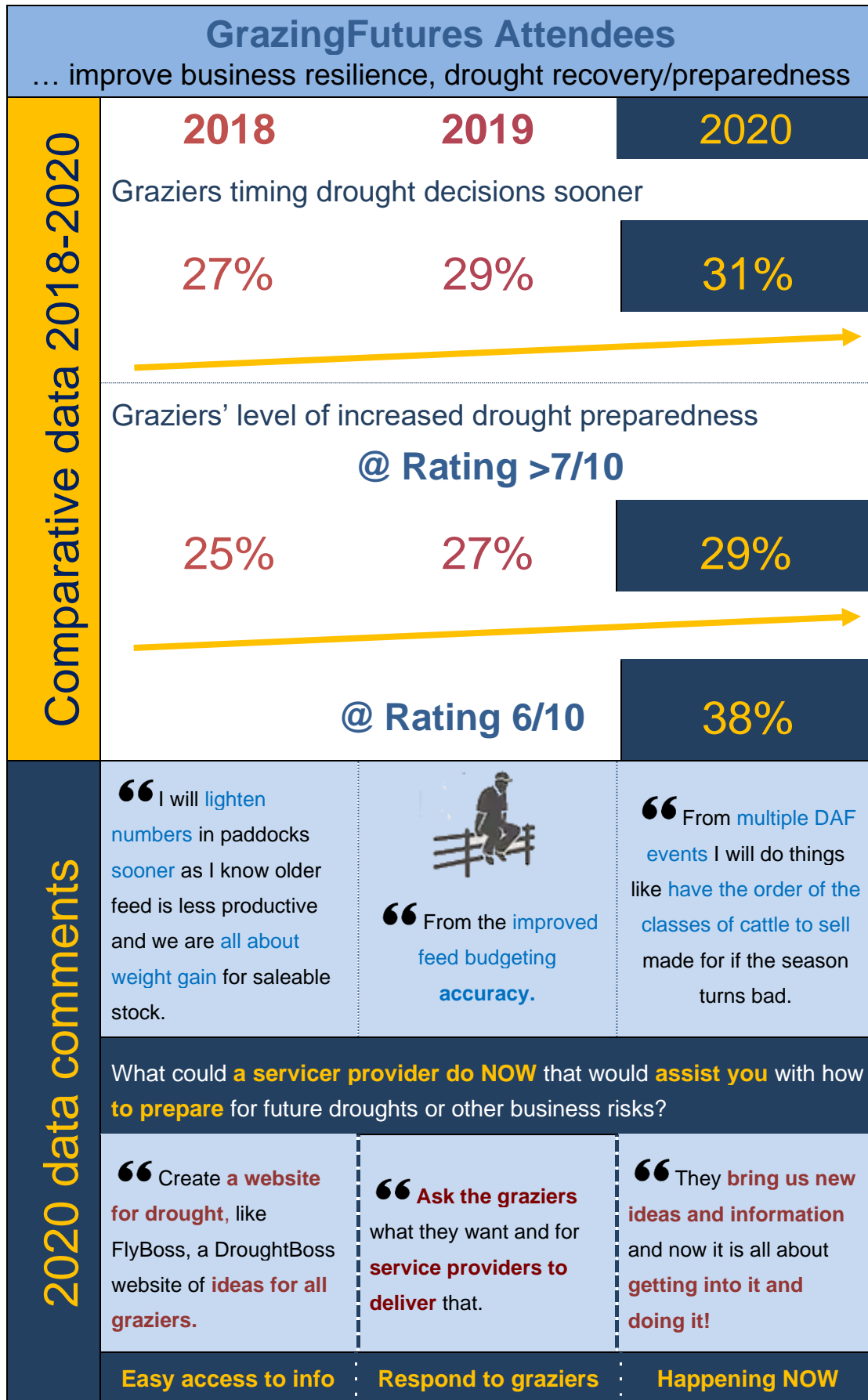
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1 Snapshots


Survey discussions with graziers from 45 properties generates quite a volume of data about GrazingFutures.


The interpretation of the data refines it to an increased level of understanding and that is presented in the overall report. The report is still a large quantity of reading material.

For that reason, the following six snapshots of the data offer summaries that show the progress of the project on delivering key outcomes for the graziers.



GrazingFutures Attendees ... all-up practice change				
Comparative data	2018	2019	2020	
	Graziers considering change			
	74%	82%	71%	
	Graziers with change commenced or completed			
49%	62%	62%		
	Grazing BMP	Post Grazing BMP	Post Grazing BMP	
2020 data comments	How is your change going?			
	<p>“Change is going very well and the response after rain is amazing in the ponded area.</p>	 <p>“Measuring of browse is going well in our feed budgets.</p>	<p>“Group is talking together and I like that for getting ideas and E-Beef crunch numbers with BDO so we can look to see if on track and use to make decisions.</p>	
	<p>“Trial of walk over weighting ... don't have to muster them to find out how they are doing on the feed.</p>	<p>“Trialling M8U plus P on first calf heifers of our herd.</p>	<p>“We stopped taking agistment cattle this summer ... so they weren't damaging young Mitchell plants.</p>	
	Delivery context across the regions			
	<p>South</p> <p>Discrete events</p>	<p>Central</p> <p>Discrete events</p>	<p>North</p> <p>Multiple services/client</p>	
<p>IMPACT overall 3 in 5 graziers make change after attending GrazingFutures</p>				

GrazingFutures Attendees ... Animal production changes made			
Comparative	2018	2019	2020
	Graziers making changes		
	39%	49%	27%
2020 data and comments	Animal Production change examples		
	<p>“ Faecal sampling to decide on the components of a lick which we mix ourselves.</p>	 <p>“ Change type of P to avoid any possibility heavy metals accumulating</p>	<p>“ For nutrition we have done dung sampling to know what we required ... we did change the amount of P.</p>
	Graziers making changes by region		
	South 25%	Central 33%	North 25%
	Graziers expecting benefits to occur		
	In 2 years or less 67%	In Ground Cover 50%	In Profit 92%
	<p>“ Expect 2 years until can measure in terms of calving rate and weight gain etc.</p>	<p>“ As we use our feed budgets to decide when to shift stock.</p>	<p>“ Through increased pregnancy rates in all years as pregnancy rate is related to profitability.</p>
	<p>IMPACT overall 92% of graziers expect to profit. “ Profit is what keeps us here and able to be sustained (resilience) ”</p>		

GrazingFutures Attendees ... GLM changes made			
Comparative	2018	2019	2020
	Graziers making changes	16%	18%
2020 data and comments	GLM change examples		
	<p>“ We now wet season spell and only feed urea lick after July which allows us to get 0.3 to 0.4kg/day.</p>	 <p>“ Trialled doing water ponding on 1,500 acres harder country.</p>	<p>“ The plant identification gave us new knowledge on the stage of growth and when to stock and spell.</p>
	Graziers making changes by region		
	South 35%	Central 13%	North 50%
	Graziers expecting benefits to occur		
	In 2 years or less 71%	In ground cover 93%	In profit 93%
<p>“ Through grass cover improvement on our mulga soils.</p>	<p>“ By holding up water and getting it into the soil and plants will stay in good quality.</p>	<p>“ The grass holds on longer and animals will keep adding the kgs for longer e.g. could get 0.6kg/d for a month longer.</p>	
<p>IMPACT overall 93% of graziers expect more ground cover. <i>Graziers know ... “It does completely depend on seasons and whether or not there is rain”</i></p>			

GrazingFutures Attendees ... Business practice changes				
Comparative data 2018-2020	Business practice	2018	2020	
	Prepare annual budgets	78.9%	62.8%	↓
	Talk generally with one or more other producers about your business management decisions	36.8%	53.5%	↑
	Talk directly with one or more other producers about your business management decisions	28.1%	51.2%	↑
	Do business performance analysis	28.1%	41.9%	↑
	Have a written business plan with goals*	43.9%	37.2%	↓
	Work with my bank about my business management decisions	28.1%	30.2%	↑
	Work with a financial advisor or other service provider (e.g. DAF, NRM group) about my business management decisions	47.4%	26.6%	↓
	Have a financial risk management plan	15.8%	9.3%	↓
	I make business decisions only when they are needed	3.5%	2.4%	↓
	I don't have a business plan (of any sort)	15.8%	30.2%	
*Graziers reporting no written business plan with goals often add the comment: "No written business plan but my plan/my business goals are in my head."				
The business practices above are ones that were chosen by subject-matter specialists and graziers as valuable for business resilience in times of drought.				
		2018	2019	2020
Graziers making changes				
		16%	4%	7%
2020 changes	GBMP biz module	Lesser biz focus		
	<p>“ The Excel knowledge allowed us to refine our data processing which we'd been using over the 6 years of drought to improve reproduction rate from 1.5 lambs/ewe/year at the start of the drought. to 3/ewe/year.</p>	<p>“ For me the difference is that I'm having my business analysis done through a professional group which is offered as part of the project - previously used to do it ourselves ...</p>	<p>“ Yes because at 'Data to decision making workshop' there was a refinancing discussion suggesting an independent operator so we went and had our loans restructured.</p>	
Business IMPACT level currently low.				

GrazingFutures 2020 ... Recommendations	
Recommendations	#1
	That GrazingFutures coordinators include at least two (2) events in their next 12 months that build grazier financial business skills and knowledge. An example of a start event may be 'grazing business literacy' presented by local staff. As well it is recommended that they look for one or two tools local delivery staff could apply in GrazingFutures work. Ideally the tools would be ones local graziers already use.
	#2
	It is recommended that for all GrazingFutures events, specific attention be given to the design and delivery of them for impacts known to align with improved business resilience, drought recovery and future drought preparedness and that those delivering make clear reference to that application 'on-farm' and provide examples of what other graziers are doing to apply it in their drought management.
	#3
That regional coordinators meet before they finalise their annual operational planning to exchange ideas on what events they will focus their region's resources on. This will use the experience of the co-ordinators to broaden the delivery options in use in GrazingFutures in each region.	
#4	
That the GrazingFutures project manager and coordinators explore the grazier feedback of mapping workshops in each region over the time GrazingFutures has been in operation, and that they use that information to make decisions on the tool/s to be used in future mapping events to suit the graziers attending.	
#5	
It is again recommended that for at least one of the management practice changes that is being recommended, that the project team use the ADOPT tool to assess the expected level of and time to adoption that will promote improved business and drought resilience. That the team then use the roadmap provided by ADOPT in planning delivery to increase the rate of practice change.	

2 Background

In 2020 western Queensland areas continued to experience extended drought. In May 2020, 41 council areas in Queensland were drought declared, which represents 67.4% of the state. For GrazingFutures project regions it is the south and central that have been affected for the longest duration.

Since the start of GrazingFutures, rain recordings in much of western Queensland are down with average rain only recorded from unseasonal amounts of winter rain in 2016. There have been varying degrees of relief rain in parts of the south, central and north regions in the late summer of 2019/2020 with falls in March.

Initially GrazingFutures included the use of the Grazing BMP process as an entry point for connecting with graziers. The project now focusses on the delivery of activities identified as timely and relevant to industry and relevant to improved business, drought preparedness and resilience.

GrazingFutures contributes to the Queensland Government's 2015 election promise to 'work concurrently with industry to develop a suite of measures that will assist producers to improve their climate risk management and drought preparedness strategies for the longer term'. This project will build more resilient businesses by helping beef and sheep producers make informed decisions to recover from the current drought and to better plan and manage for future droughts.

The survey work reported here assesses grazier responses to the delivery of GrazingFutures activities including changes made as a result of their involvement. It also includes changes in drought management and the timeliness of decisions for drought conditions.

The preparation of the survey report again provides information relevant to components of the GrazingFutures Project Strategic Plan. They are:

- It provides methodological support for the process of enhancing graziers' skills, and
- It provides for management of the strategic project risk that 'Graziers don't see value in the project – they don't get involved, there is industry disinterest and lack of engagement. Workshop/engagement fatigue is an issue'.

The risk referred to can be substantially reduced by being proactive and implementing the strategies suggested throughout this report. For example, the report shows instances of attendees' sharing of practice change information post-event. That is an unanticipated beneficial effect, and shows a wider industry impact occurring. It is unmeasured and may be considered for any future surveying of attendees.

3 Survey methodology

Survey content

In 2020 the all-regions survey used the 2019 content developed with project regional co-ordinators and other DAF staff involved in the project. Additionally, for 2020 surveying, regional coordinators submitted region-specific themes and/or questions for their use in regional planning and event focus.

The additions produced five (5) or six (6) extra questions per region. The three (3) sets of questions used in individual regions were themed 'climate variability', 'wet-season spelling', and 'factors supporting/inhibiting practice change'.

The additional questions would have increased the time beyond the target of 30 minutes of graziers' time. To maintain the response time of 30 minutes a review of the 2019 content enabled the removal some component questions that contributed little or no more relevant information than in previous reporting. This was done to continue with a content and format that assesses progress to date and enables reporting on project achievements.

Respondents

Regional co-ordinators and their teams provided the names and contact details of graziers who had participated in project activities in the past 12-18 months.

Regional coordinators provided project activities graziers attended together with the names of delivery staff. This information was used by the interviewer to make connection to the landholders and support them in choosing to be involved in the survey by relating it to the activities and deliverers. Coordinators also provided details of location.

Confidentiality of survey information has been assured because the project team agreed to anonymity through separation of landholder-identifying details and survey responses.

Response numbers

Responses were collected from participating graziers with 20 in south, 15 in central region and 10 in north. The variation in numbers continued an agreed target with coordinators as indicative of grazer populations in each region.

Respondent selection

Graziers were selected in a first overlay by the interviewer on having not been interviewed previously and that continued the concept of the accumulated data from each surveying to represent a cross-section of graziers involved with GrazingFutures.

The next overlay was variety of events in the region. A third overlay was geographic distribution across the three (3) regions followed by availability and willingness to respond to the survey. There were four (4) who, when told the purpose, uses and process of the surveying, were unable or unwilling to be involved. For two (2) others a different person answered the phone, said they'd get the other to call back however that never happened. For one (1) they were unable to be contacted on all attempts. Only four (4) of the 45 properties were surveyed for a second time to assist in getting the variety of events.

It is of interest to note that for the event 'Bet on your books', three (3) graziers each agreed to do the survey and a future time was set for the interview discussion. All three (3) spoke as though they would be happy to be involved however on each occasion it proved unsuitable even when rescheduled. No action was taken to explore the 'no shows' as that would have been outside the methodologic principle of a 'free and informed choice' to be in the surveying. Two (2) of them had said they had young babies and that they were having to manage their time to suit.

Collection principles

During data collection the interviewer:

- Reminded respondents of the survey purpose and its anonymity
- Matched the speed of interviewing with the respondent's delivery
- Matter-of-factly reminded them that their own knowledge and experience should be taken into account when thinking about the role of GrazingFutures activities in prompting any change (the process was to seek disconfirming information particularly in relation to impacts that may or may not be attributable to the project and its interventions)
- Regularly checked for understanding
- Made notes in addition to the base data being collected where those notes assisted in explaining the responses.

Collection and upload

The process used for collection and upload was:

- An initial phone contact for interest, availability and date to phone for collection and to make a first connection with the grazier through a brief conversation
- Survey emailed to each respondent for their information and/or to have available during phone survey conversations (three (3) chose not to have it sent)
- Phone as arranged to collect the information

- Uploading was done to the YourData site
- During the phone data collection, responses were recorded directly on to the YourData site while talking and expansions, corrections, explanations etc. were added soon after the interview.

4 Seasonal conditions in which GrazingFutures has operated

In 2019 this section was called 'Industry context' however for 2020 this area was deemed suitable for removal of questions to reduce survey time and it was restricted to Seasonal conditions only.

Seasons since 2015/16

Drought continues to be the predominant seasonal pattern graziers report across the project regions for 2015-2020. There is however a notable difference in 2020 in that more surveyed graziers report have some feed producing rain for summer 2019/20.

In the south and central regions the drought has persisted since 2013 while in the north most graziers report rainfalls lower than their average. Some areas of the south where graziers in previous surveys had reported drought did have some rain which, while still a lighter season, has proved more productive of pasture, *'Haven't had even half our average range – 175 out of 400mm – but it has fallen differently this year and result is even better feed.'*

Of particular note is the variation in seasonal conditions within any one region. For example, some graziers have not felt the effects of drought in the time of GrazingFutures' operations, *'Good to exceptional in each year of that time'*, while another in the same region reported, *'Very dry before 2015/16 then had winter rain - very little rain since including this year and we are selling all our sheep in the next few weeks as we only have grass on half the property'*.

5 Reporting

The findings reported here are from 45 grazer respondents who'd attended GrazingFutures events in the 12 to 18 months prior to April 2020 in the three (3) regions of the project.

Of these 11 had self-replacing sheep flocks with three (3) of these having goats and five (5) having cattle as part of their business. One of the 11 runs all three species and two (2) have broadacre farming in their enterprise mix.

The remaining 34 have mostly self-replacing cattle herds as their main enterprise.

While unable to be definitive it appears the variability of rainfall is prompting some graziers to set themselves to be more agile in maintaining enterprise income. The agility is being aided by the higher returns for meat.

For example:

- *'I tell people I have the easiest job in Longreach because everything (all our stock) is for sale all the time. We don't try to keep anything and for us finding right market at the time is key. In light seasons we sell older/heavier cattle that eat more and bring in lighter ones and when season is really poor we bring in smaller ones again. We have no cows and calves to manage – got to be flexible!'*
- *'I'm interested in the possibilities for goats. Goats are complementary to sheep and people don't need to buy the wool garment whereas they do need to buy food. When wool was 2200c/kg it was our main income now at 1170c/kg it isn't. Now it is meat of any type that is the main income!'*

6 Findings and interpretations

Findings and interpretations are presented under headings that respond to GrazingFutures, Objective 2 which reads, "Support grazing businesses in western Queensland to improve business resilience, drought recovery and future drought preparedness". Wherever possible headings align with those used in the 2019 report.

6.1 Events attend by respondents

GrazingFutures staff provided a list of event topics graziers attended and they are shown here:

<ul style="list-style-type: none"> • Data to decision making webinar • Data to decision making workshop • Pimelea update webinar • Pimelea update workshop • Paddock walks • General pest management principles presented by Bush Agribusiness. • Sheep scenarios and goat scenarios • P-Day workshops • Phoenix Mapping workshop • Innovation Hub activities (E-Beef) • Regenerative Ag workshop on Dunluce • Walk Over Weighing (WoW) paddock trials and activities • Neighbour Days • Northern Grazing Network (NGN) producer group activities including tour • NGN Executive Challenge • Phosphorus Roadshow on Green Hills 	<ul style="list-style-type: none"> • Food & Fibre St George • Feed or sell this dry season, Bollon • Water Ponding Field Days • Pasture Biodiversity field day • Breeder Management workshops • Excel spreadsheets for farming businesses • Bet on your books - keeping tax, GST and management records, accounting software • Ag Advisor breakfast Roma • Rehydrating your landscape field days • One-to one activities e.g. <ul style="list-style-type: none"> ○ Breedcow program ○ weaner management ○ land condition assess for carrying capacity ○ sown grasses and legume trials for drought resilience ○ Leucaena production systems ○ soil sampling for fertilizer requirements ○ grazing management ○ wet season spelling ○ visit from pasture biomass team ○ long paddock FORAGE ground cover comparison reports and other tools.
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Graziers' reasons for going to events often referred to wanting to increase their skill and knowledge on the topic e.g. *'I wanted to extend my knowledge and use of Excel in our lamb and mixed cropping enterprise'*.

And for another, *'To hear ideas I hadn't 't heard before and to get the science rather than the anecdotal reasons for Phosphorous feeding and to ask questions and notice how well or otherwise they are answered for use as I decide on what to use'*.

Often, they attended events they had attended on the topic previously. In doing so they regularly reported that they checked what they did was on the right track e.g. *‘It backed up what we were doing’*.

6.2 Level of change in drought decision making

6.2.1 Drought preparedness

To influence drought decision making is a reason for GrazingFutures operating in the regions where it does and the level of influence is a measure of how well the project is progressing.

Graziers were asked how much GrazingFutures activities assisted them to better prepare for drought. The rating scale for this response was 1=Not at all; 10=Very much. And the results are shown in Table 1.

Table 1 Level of assistance to better prepare for drought

Rating	Percent	Responses
Not at all 1	17.8	8
2	4.4	2
3	17.8	8
4	11.1	5
5	8.9	4
6	8.9	4
7	13.3	6
8	11.1	5
9	0	0
10 Very much	4.4	2
N/A	2.2	1

On that rating scale 29% of grazing businesses rated the activities they attended at seven (7) or more for enabling them to in some way improve their drought management. They often provided specific examples and, like the previous survey some of these comments came even when rating six or below:

- *'I found out that another grazier was feeding 4-5% P with salt and energy was low in available feed and that when the amount of energy to process the P is greater than (in feed) they can fall over dead for lack of energy reserve. It is important (to know that) in drought to prevent losses'*
- *'The drought preparation gain is from now on to watch grasses more and the biodiversity...whereas I used to watch cows, we now set green dates and take' action and we are more likely to stick to dates especially as seasons are so variable*
- *'Definitely (more prepared) e.g. as I now know that areas along creeks keep water and moisture for longer and that gives better animal growth rates for longer'*
- *'The benefit we got is through understanding and measuring our available feed and matching stocking rate to feed results as we need to match stocking rate to rain results'*
- *'(Water ponding etc) won't make us drought-proof and is no good without rain, but it gives a headstart with any rain as it doubles the usefulness of any rain on the country.'*

The 29% recorded rating it seven (7) or more in this 2020 survey represents a modest but steady increase on the previous survey periods – comparably 2019 was 27% and 2018 it was 25%. The seven (7) or more has been the consistently used figure in GrazingFutures surveys and remains as a key continuing measure. It is however of interest to note that at six (6) or greater the level of impact rises to greater than a third of participants, 38%.

While the year on year figures are not significantly different it does show something of importance in the level of impact GrazingFutures activities are having on drought. It means that providing services to the industry that enable drought preparedness is consistently having the desired impact and that it is consistently rising.

That consistency of influence and the annual increase is less likely to be a 'chance' outcome for the project because, as explained in the methodology, the survey seeks a cross-section of GrazingFutures clients and so does not survey graziers previously surveyed¹.

As reasoned last year the three (3) years of drought impacting on central and south regions prior to the advent of GrazingFutures means graziers already had time to develop their own preparedness uninfluenced by GrazingFutures. In 2019 that was supported by grazier comments and that remains the case in the 2020 surveying e.g. *'We already have drought plans we work to and these activities have added a little to that.'*

¹ Four (4) were surveyed for a second time in the 2020 survey of which 2 were in north and 2 in central. They were included to allow coverage of events GrazingFutures offered.

6.2.2 Timing of drought decisions

A second element in assessing change in drought decision making is whether or not drought decisions are being made sooner. In 2018 surveying the proportion was 27% making decisions sooner and 2019 it too was similar at 29% and for 2020 it is 31% as shown in Table 2.

Table 2 GrazingFutures participants making drought decisions sooner, 2020

Value	Percent	Survey year
Yes	31%	2020
Yes	29%	2019
Yes	27%	2018

In this the third surveying period there is again movement in a positive direction from that reported twice previously. Like the upward progression of data for drought preparedness the timing of decisions data, is showing both consistency and a modest increase.

Such consistency and the increases testify positively to the direction being taken in the regions to address preparedness and timing of decisions.

Comments by graziers when confirming they make decisions sooner fall into two (2) categories and examples of those are:

Direct action

- *'I will lighten numbers in paddocks sooner as I know older feed is less productive and we are all about weight gain for saleable stock'*
- *'As we'll be tracking weights and can tell sooner if they need to be removed or sold etc'*
- *'From the Breeder workshop we were reminded to not feed free loaders and we will begin feeding earlier and buy cotton seed earlier'*
- *'From the improved feed budgeting accuracy'.*

Additional planning

- *'As we are more planned now in how and when we make decisions''*
- *From multiple DAF events I will do things like have the order of the classes of cattle to sell made for if the season turns bad'*
- *'Because we now recognise the need to be ready with decisions'*
- *'Yes to some degree e.g. if we identify animals that are more hardy in drought from our records.'*

There is also a comment showing that multiple factors have to be accounted for by graziers in drought decision making and it is that which makes it problematic, *'Making drought decisions is a combo lot of other things e.g. climate forecasts, and in one case we joined on a forecast for rain but it didn't happen after having joined.'*

As well, another recognised the need to be focused on the future even when in drought, *'I suggest that rather than only focussing on cattle during the drought to focus on, for example, investing in infrastructure so you are ready to act when the drought breaks so we weigh-up our (future) options'*.

Survey reporting in 2018 and 2019 recommended that for all GrazingFutures activities, specific attention be given to design and delivery of them for impacts known to align with improved business resilience, drought recovery and future drought preparedness and that those delivering make clear reference to that application 'on-farm'.

In casual discussion with coordinators it appears it is not a general practice to talk about the relevance of the event to business resilience or drought decisions. A recurring reason given was that it wasn't always appropriate to do that.

Because of this the same recommendation is made as in 2019. It is being made again for two reasons, the first is as a means of focussing deliverers on the GrazingFutures objective relating to building drought resilience. The second is because providing participants with a clearly stated intention for the use of the information is a recognised learning technique. It is also an extension technique for creating a focus for conversations about a topic at activities.

6.2.3 Additional drought delivery data

In the two (2) previous sections 6.2.1 and 6.2.2, are the main data on the achievements of GrazingFutures for graziers' management of drought as a business risk.

In this section there is some additional data relating to drought. It was collected for south region and in it graziers made suggestions for what services would be valuable in drought times.

To put a context onto 6.2.3 it may be seen from the events graziers attended (listed in section 6.1) and the reasons given for attending events, that if there is a theme in the reasons then it could be said they:

- Are looking for ways to solve problems (or check their current solutions to potential problems) and/or
- To find ways that appeal to them to make their businesses more profitable.

Examples of reasons that could support the theme include:

- *'Wanted to see the ideas having done water ponding before about 20 years ago'*

- *'To get the experience of an expert like Ray Thompson and professional help of Rhonda Toms-Morgan'*
- *'Due to Mick's vast experience and challenge our own ideas'*
- *'It was local relevant to us with wheat farming and grazing and there were restocking finance options from Elders by Brett Smith – it was a good day'*
- *'To see if there are any updates in industry, or look for new findings, which is what we've always done'*
- *'I'm interested where are the possibilities for goats - goats are complementary to sheep - people don't need to buy the wool garment - do need to buy food - when wool was 2200c it was main income now at 1170 it isn't - now it is meat of any type that is the main income'*
- *'We wanted to learn about mulga as our previous property was in eastern Queensland'*
- *'Always pick up something; already destocked by drought; have got feed this year but can't restock as don't have cash to buy stock, so could agist; it costs \$200,000 to convert a paddock from cropping to pasture; we use P2PAgri program to analyse scenarios and it showed a lot more profit with grazing than cropping where the costs of production, freight etc are big'*
- *'Aware we breed on P deficient country and we are in a project with MLA that showed even though we feed P all year in a loose lick our cattle were deficient so went looking to hear of updates and new research as like to keep up with what information is around.'*

If that theme interpretation is supportable by such reasons then **it may mean that graziers see removing apparent problems and increasing productivity as the means to better prepare for drought and other business risks.** They mostly report doing so through increased production of pasture or beef. As business enterprises seeking to make a profit, that appears quite reasonable as a means of ameliorating risk in a grazing business i.e. make enough profit to buffer drought risks.

Indeed, graziers may not view drought as any more highly risky to their business given responses to a survey with Burdekin graziers in 2019 which inquired into perceptions of risks in grazing enterprises.

In that data reporting it was clear that most graziers sought to account for risk before it occurred and did so as their means of risk management in their businesses. Possible support for that premise from the 2020 surveying for GrazingFutures is shown in this example of the purpose of making a management change, *'We aren't wanting more cattle but to improve calving rate and to go to controlled mating with good genetics.'*

As well, in this example of a reason for making management changes, *'Made (changes) to get better production through increased calving rates – fertility is a profit*

driver – and it is important to remember that if graziers haven't got the money they can't do any changes!

And, graziers do report that seeking ways to minimise risk may not always do that. For example, in the use of information meant to assist them to make profitable decisions in drought times, a grazier reported in a comment on drought, *'Making drought decisions is a combo of a lot of other things including climate forecasts, and in one case we joined on a forecast for rain but it didn't happen after having joined.'*

For south region for the 2020 surveying the coordinator chose the region-specific aspect of factors supporting/inhibiting practice change. A question developed for South region graziers was, "What could a service provider do NOW that would assist you with how to prepare for future droughts or other business risks?"

Extension literature supports service deliverers seeking input from 'farmers' to inform service delivery. That concept applied here means it is graziers' own experience of managing in drought which may better inform GrazingFutures drought management activities. It is graziers' own experience of drought that was the purpose of the question included for south region respondents.

All 20 graziers from south responded to the question. The categories shown are somewhat subjective which means they could be done differently by others. Those used here however do appear to be useful as a 'first pass' examination of responses.

Provide drought specific support resources

- *'Provide workshops like the Breeder Management one specifically for drought management'*
- *'Create a (web)site for drought, like the FlyBoss website, a DroughtBoss website of ideas for all graziers including decision making tools for drought decisions and drought recovery; including a decision tree e.g. for sheep path, goat path, cattle; I'm on an MLA committee with David Counsel and we are looking at who could do it'*
- *'Information and workshops on understanding weather information e.g. some years ago there was a 5-day weather workshop and Farming Systems activities that showed how to use Rainman, but that (site) hasn't been available to use lately; if we could access that data it would be good to look at latest SOI and ENSO pattern for our property i.e. data for our worst years etc'*
- *'Access to nutrition program advice on what is the best feed to use at the moment in a drought'*
- *'Keep bringing ideas relevant to local areas and provide on property support for how to implement management changes on our (individual) country'*

- *'Do case studies on benefits and constraints of practices when in drought including advice on financial management'*
- *'Maybe providing more information for us on techniques for slowing water flows to rehydrate the landscape to maximise the response to smaller rain amounts e.g. could get Peter Andrews or his son up for a workshop on the topic'*
- *'Every drought is different and providing information that shows how one is different to another could be useful'.*

Clearly these graziers have ideas of what would assist them to have their business perform better in droughts. For their business they want access to information that is about the 'current drought' and that is labelled as being for the drought.

The concept of a central repository² that is available to all and which provides timely information is not new and projects such as FutureBeef and Leading Sheep could prove to be willing partners.

The information wanted is for 'whatever drought is happening at the time' and drought topics are ones that can usefully relate to Animal Production, GLM and Business analysis and decision making. Graziers have provided examples to support their suggestions which, having come from graziers, represents a significant part of a 'gold standard' for a project such as GrazingFutures with its focus on improving drought and business resilience.

Provide specific response services

- *'Property specific information in response to drought questions e.g. in DAF Murray Wingett provides info or will direct us to right place/person'*
- *'Provide a business analysis process to choose the best option to invest in development on our property and I'd be interested in that to help make financial decisions e.g. \$100,000 into blade plough or water spreading; (could include) a bus tour to properties doing different development options with case studies showing economics'*
- *'Ask the graziers what they want and for service providers work together to deliver those so graziers get the best value - also not have events clash'*
- *'Provide information to improve my understanding of nutritional needs between birthing and weaning (in drought); we need to get better and do so faster because agriculture is seasonal and if we only make one change a year it can take 7-8 years to sort out that change for improvement'*

² In work done with FutureBeef graziers and other stakeholders from across north Australia and FutureBeef staff in February 2020, a similar idea was recommended by stakeholders. Contact, Nicole Sallur.

- *'How to maintain water ponding banks as cattle walk over them and then they wash out'.*

Here graziers are suggesting that service deliverers be responsive to specific grazier-generated needs at the time of the drought. Much of the content of the list could be constantly available in the grazier-suggested central repository.

It is true that service provider organisations report their services are 'on-call' for graziers. It is also the case that data from Burdekin catchment graziers has been interpreted and verified with those graziers, and that data set suggests:

- It is true for some graziers but not all, and
- It is done by some service provider staff more than others.

Those Burdekin graziers' suggestion is for service providers to do it consistently and to make more graziers aware of what services are available.

Funding

- *'Funding for water improvements e.g. desilting dams'*
- *'Probably keep us in the loop of funding opportunities from any grants as they are important as it helps start trialling changes'*

This is a self-explanatory category from graziers with specific needs which could be provided via a central repository.

Acknowledging already relevant services:

- *'Their (service provider) information has made the decision easier to trial a different management practice'*
- *'They are doing a good job for me now e.g. they talked about the right feed however graziers do hate to pay (for information services)'*
- *'They bring us new ideas and information and now it is all about us getting into it and doing it'.*

Like other data in the report the items in this category show the success GrazingFutures is achieving already with service delivery and that is shown throughout this report.

Others

- *'Join graziers to work for change to the vegetation management act so we can use the resources e.g. mulga is the resource but we can't manage it effectively for production''*
- *'For service providers it is important to never talk on things they don't understand e.g. RFCs to not overstep their brief; If deliverers are bringing resources they need have quality information and they need real information and put it into local*

language, to explain why it is important to my business and how any change I make will relate to my business'.

The first item in 'Other' is from a grazier who sees the vegetation management act as constraining his business in times of drought.

The second is from a rural bank representative at an 'Agents Breakfast'. While that may suggest an assumed context, any such assumption should not cloud the content in a way that loses its interpretative value to GrazingFutures, e.g. '*...to explain why it is important to my business and how any change I make will relate to my business'.* That latter point is recommended again in this report.

In both cases the subjects raised are not categorizable with other comments and each are single entities. Those two facts suggest any interpretations made require checking for wider applicability. As well, the context of the GrazingFutures' project objectives should be taken into account when considering the relevance of each.

Summary

Grazier ratings in 2020 for the level of assistance GrazingFutures events gave them to prepare for drought has risen to 29%, and responses to whether or not events led them to making drought decision sooner rose to 31%. Both continue the consistent gains reported in 2019 and 2018. While not significant it is valuable to see the impact is a general trend is for improvement in both indicators, consistency contributes to significance and should be actively pursued in GrazingFutures.

Of note is the consistency across the three (3) years of surveying to maintain the base level proportion at greater than 25% of respondents being better prepared and making decisions sooner together with a consistent moderate increase.

Nothing in survey respondents' other comments in 2020 makes explicit reference to link GrazingFutures events to drought preparedness and decision making. It must be said however that no question directly sought that information in the surveying common to all regions.

The fact that being explicit about an event's relevance to drought is being recommended for use in GrazingFutures events for a third time suggests for any future surveys that a class of questions be included to explore if that is evident to attendees.

In a similar vein, it may be useful for regional coordinators to do their own research into learning theories relevant to GrazingFutures events. To do so they could identify how to use one or more theories to better focus the process of events to increase recognition by graziers of the application to business and drought resilience, which is the aim of Project Objective 2. Such a theory can be that of 'farmer first' in its various formats.

There is the one set of data from graziers already available from data collected in south region. Graziers want access to information for 'whatever drought is happening at the time' and topics graziers mention are ones that can usefully relate to productivity when in drought for Animal Production, GLM and Business analysis and decision making. These components are all the 'work' of GrazingFutures. The data from graziers experiencing drought represents a significant part of a 'gold standard' for a project such as GrazingFutures with its focus on improving drought and business resilience.

6.3 Assessing the link between GrazingFutures events and project objectives

GrazingFutures supports grazing businesses in western Queensland to select and implement management changes that will improve business resilience, drought recovery and future drought preparedness.

The grazer survey data provides information on Objective 2 which is written as, "Support grazing businesses in western Queensland to improve business resilience, drought recovery and future drought preparedness".

Two (2) previous surveys of GrazingFutures participants reported making changes prompted by involvement in project activities. Again this will be done for 2020 surveying using the same three (3) data sources to understand impact at this level. They are:

- a) Numbers considering a change to make either at a GrazingFutures event or after it in the areas of business management, animal production or Grazing Land Management (GLM)
- b) Numbers seeking further information on their chosen changes as a recognised next step towards implementation, as an indicator of progression in a decision to adopt
- c) Numbers reporting having commenced or completed their selected change/s at the time of the surveying as the proportion actually making a management change.

Numbers considering a management change

Respondents from 32 of 45 grazing businesses surveyed report considering making a total of 36 changes following a GrazingFutures' event in the previous 12-18 months.

The proportion considering changes is lower than in previous years and the variation across the three (3) survey periods is shown in Table 3.

Table 3. Graziers considering a change after events in 3 survey periods

Value	Percent	Response nos.	Survey year
Yes	71%	32/45	2020
Yes	82%	37/45	2019
Yes	74%	42/57	2018

For central region the proportion of graziers considering change was 60% as a result of attending a GrazingFutures event. For south region the proportion is 75%. For north region the proportion is 70%. All three are below previously reported proportions considering change.

Points of context to note in considering the differences between regions are:

- South region's 20 respondents participated in discrete 'events' run by GrazingFutures in the previous 18 months and in that time 12 attended more than one (1) event
- Central region's 15 respondents participated in discrete 'events' run by GrazingFutures in the previous 18 months and in that time only three (3) had attend more than one (1) event
- North region's 10 respondents were all longer-term clients of DAF who mostly had multiple topics listed as 'services' provided by GrazingFutures
- DAF staff numbers vary between regions
- Survey numbers for each region were agreed by coordinators and the project leader, to reflect the numbers of potential clients for GrazingFutures in regions.

A previous observation made by the surveyor is that when inviting graziers to be involved in the survey, those who have attended more than one (1) event, seem 'more ready' to answer 'Yes'. This observation arose through initially selecting first contacts for surveying in each region by the number of events attended as a means to better characterise the impact of the work of GrazingFutures.

When that observation is added to the context notes above then it may suggest that an approach for GrazingFutures to take in central is to explore how their delivery can engage graziers in more than one event and to do so with a view to developing a longer term relationship. The suggestion made here is an untested assumption and as such represents a possible discussion topic for project coordinators when meeting to capitalise on the sharing of experience and regional knowledge of delivery.

There appears no clear reason for the decrease in those considering change from events across all three (3) regions. It will therefore be of interest to follow the thread of

linking events to project objective two (2). That will be done next as numbers seeking extra information, followed by numbers commencing or completing changes.

6.3.1 Numbers seeking extra information

In relation to seeking extra information all graziers were asked if they had sought extra information since the GrazingFutures event. The responses over the three (3) sample periods are shown in Table 4.

Table 4 Seeking extra information post-event in 3 survey periods

Value	Percent	Responses nos.	Survey year
Yes	58%	26/45	2020
Yes	40%	18/45	2019
Yes	51%	29/57	2018

The proportion of graziers seeking extra information has varied year on year and for the 2020 surveying it is higher than in previous surveying which is all that can be stated.

Part two (2) of the question did ask who they sought the extra from and invited a comment on what type of information. Most often graziers asked the deliverer or the organisation leading the delivery, which is as might be expected.

As previously the information graziers asked about was quite specific to the event they'd attended which supports the idea that graziers had gained ideas from the GrazingFutures events that prompted them to seek the information. As well the graziers' comments were again seeking quite specific information on how to implement the practices presented by GrazingFutures, for example:

- *'Had Glen visit with a surveyor to talk about what to do for diversion banks and to survey the banks'*
- *'Applied for a Mulloon scholarship - to see what Peter Andrews has done in one catchment east of Canberra with natural sequence farming, as I believe that is what we need to keep working on because once I see the results it is intuitive to know that is what's needed for the land'*
- *'Spoke to a service provider about getting one on one assistance'*
- *'For soil analysis with DAF as part of Leucaena planting planning'*
- *'Talked to DAF for soil and fertiliser (types) and asked about lick and urea'*
- *'Discussed it with other graziers for their ideas for how best to proceed'*
- *'Contacted Mick about his additional ideas on what neighbours said and I spoke to neighbours for suppliers who made tailored licks.'*

It of interest to note a particular response here that demonstrates the added value of making opportunities for graziers to enter into discussions at events. Here a grazier attended a new technologies event and went away with new knowledge they used when refinancing loans:

- *We did (seek more information) because at the Data to Decision Making workshop there was a refinancing discussion where a grazier said there was another option with an independent operator, so we went to (that person) who is now operating independently*

It embraces two (2) things graziers often refer to – first, that graziers learn from other graziers at events and second, that it is a positive thing to include graziers in talking on topics at events because of their practical industry experience.

Seeking extra information can be described as a 'next step' leading to an increased likelihood of actually continuing on to adopt a changed management practice³. It obviously applies most in that way to those who need the extra information on how to implement a change.

It is reasonable for GrazingFutures to claim project impact is being referred to when graziers in this survey seek more information because the focus of survey discussion was on a practice change graziers nominated they were considering.

It is also reasonable to claim that GrazingFutures' impact is on practice change given that graziers report going to those who organised and/or presented at the event. Both are important aspects of extension delivery that enable graziers to make changes in management and that is what GrazingFutures is meant to achieve especially in business resilience, drought recovery and future drought preparedness.

6.3.2 Commencing or completing management change

The third element of impact data available from the surveying is that of numbers of graziers reporting having made their selected change or changes.

Again, it can be reported that that GrazingFutures is having an impact as a majority of attendees, in this sample 62% (see Table 5) report commencing or completing a management change. That is the same proportion as in the 2019 surveying.

³ As in Bennett's hierarchy in KASA and adoption theory where those wanting to take on a practice change do want implementation information.

Table 5 Changes commenced or completed 2018-2020

Value	Percent	Responses	Survey year
Yes	62%	28/45*	2020
Yes	62%	28/45	2019
Yes	49%	28/57	2018
* A further 8 of the total of 36 considered changes had not commenced however each graziers responded 'Yes' when asked, 'Do you still intend to make the change?'			

The timing and type of events as well as other property work influences how soon action can be taken following a GrazingFutures event. For example, in south region a 'Rehydrating your landscape' event was held in Feb 2020 and the process of adopting these practices requires planning, layout and earth works, while the project surveying was done April/May less than two (2) months post event.

It means some who want to act have not started. For the rehydration event, a grazier reported, 'We do intend to make a change however the time since the event we've spent on (exclusion) fencing. We will begin by pushing dead timber on bare areas to slow water at the top of gullies where erosion starts'.

So, again GrazingFutures is achieving change in management practices at the same level to the previous survey period. It can be noted however that each grazier who nominated but had not commenced a change, reported still intending to make the change.

Graziers report their changes are delivering the outcomes they wanted, for example:

- 'Stopped taking agistment cattle this summer as we have been taking cattle on agistment for a few years however this summer we stopped so they weren't damaging young Mitchell plants and we are seeing results with more young Mitchell grass plants evident in the pasture'
- 'At our local producer group, I talked to them about water ponding and the equipment we'd need and the idea is we could share it'
- 'Ponds showed there is a benefit however later flood washed away much of the ponding banks'
- 'Change is going very well and the response after rain is amazing in the ponded area'
- 'Is going OK with better lick and we get rid of stock sooner which is easier to decide with the better prices'

- *'Trialled urea next day after workshop and started feeding the day after that on Oct 17; 25kg bag urea worked out benefit; I weighed up in kitchen in paper cup 75g/0.85%, urea to improve my understanding; will make own lick as cheaper; I believe I could see change in cattle attitude in one week e.g. not bellowing, and see the difference in cow pat too, softer; then raised urea to 1.5% urea - trialling it first and it is working'*
- *'Trialling M8U + P on 1st calf heifers of our herd'*
- *'I do need to find time to practice what I learnt at Excel and put it all to good basic use; course was fundamental and readily useable'*
- *'Measuring of browse is going well in our feed budgets and it fitted well in to our management decisions on spelling etc as we do spell and use feed budgets to make decisions; also we are comparing feed budget figures to our rolling average rainfall totals and looking to see what that means when we monitor stock numbers'*
- *'Have only started getting data in this year (from WOW) so it isn't being used in decisions yet however it will be; We put it into a weaner paddock and I can see many uses for it in our management system'*
- *'Using tags and recording in the book for future additions of info for our decisions'*
- *'Trial of walk over weighting and using it with our trade cattle which are weaner; WoW is there and means we don't have to have to muster them to find out how they are doing on the feed'*
- *'Couple of contour banks near road and took the water out to the top of ridge and it seemed to work in the lighter rain we had this year'*
- *'50-60 woo boys put in using dumpy level as a trial and only 2 'blew' (this summer) so it proved we need to use tech as others we put in by eye didn't last'*
- *'Group is talking together and I like that for getting ideas and E-Beef crunch numbers with BDO so we can look to see if on track and use to make decisions'*
- *'Sown pasture species are good and growing but in drier years slow down the rate of getting the pasture established'*
- *'Plantings of lucaena are going well and it grows green leaves even in dry season - and is of higher protein'.*

These comments describe some of the successful changes made and graziers satisfaction with outcomes.

Regionally the proportions commencing or completing changes as a proportion of those surveyed are for south region it is 60%, for central region 47% and 80% for north.

A particular point of interest is to note that in the 2019 report of GrazingFutures surveying the following summary was made of graziers' comments after attending mapping workshops using Phoenix and that were run by GrazingFutures:

“Surveying data of graziers’ comments suggested there were multiple attendees who struggled to keep-up in the Phoenix workshops, left frustrated that they’d achieved little of value and found it difficult to recall and apply what they described as a difficult and costly system once they got home.”

In the 2020 surveying three (3) graziers report attending a mapping workshop using Phoenix. One was familiar with Phoenix and used it already, reporting the reason for attending as:

- *‘I use Phoenix for other things wanted to sharpen up my skills in GPS and mapping for PMAV for Carbon (farming).’*

The other two graziers, one in north and one in south report similar experiences to those new to the Phoenix system last year. They made these two comments:

Reason for attending and comment after:

Grazier 1

- *‘I would love to do mapping so we have one for our place and be able to mark changes etc’, and after*
- *‘I have done the Phoenix twice...and there is lot in it and I cannot just sit down and embrace it; I have tried to learn and haven't found enough time; I have spoken to a service provider about assistance but nothing happened. It would be good to be able to go to someone in Charleville or have them come to our place and do the map and how to do things like add changes to basics maps e.g. replacement fences; Phoenix is not a group thing as it is always rushed, and you don't go away with anything at the end of the day.’*

Grazier 2

- *‘Our property is under-developed, needing fencing and more waters that are permanent and to do that well without wasting time we need a useable map to give us the capacity to plan’, and after*
- *‘No change for the Phoenix mapping as, while I'd seen it used elsewhere, at the Phoenix workshop I attended the Google Earth imagery the presenter used was inadequate to achieve the mapping on the day in the workshop; I think they hadn't checked whatever is their mapping system for our area; that is a problem when people come in without local knowledge; I believe Queensland globe is a more useable mapping system’.*

It is clear again that graziers recognise the value of mapping in management. Responses from these two graziers however support the interpretation made in 2019 that the choice of Phoenix as the mapping program in training events has not delivered

the benefits a number of graziers wanted in a single instance workshop. For that reason a recommendation is being included in this report relating to future mapping events.

Like in 2019 the grazier who in 2020 was satisfied with the mapping training using Phoenix was very familiar and skilful from previous experience with the particular program. And, also like 2019, those not satisfied identified their lack of experience as contributing to their difficulties, together with the fast pace of the workshop.

6.3.3 Summary

Survey data demonstrated that GrazingFutures project delivery is achieving success in Project Objective 2 i.e. "Support grazing businesses in western Queensland to improve business resilience, drought recovery and future drought preparedness."

Like in the previous grazier surveys reported in 2018 and 2019 it has again been possible to establish the impact of the project from tracking levels of those who, after a GrazingFutures event, did:

- Consider making a management change
- Seek more information on a topic, most often implementation information, and
- Commence or complete one or more changes.

The proportion of graziers reporting commencing a change is 62%. That is similar to the level of practice change reported in surveying in 2019. The maintenance of that level of change compared to that when Grazing BMP was central to delivery, may relate to:

- The continuing practicality of GrazingFutures run events relevant to graziers situations
- There being sufficient content and follow-up support to enable attendees to implement the practices on their properties, and
- Graziers expecting the changes to make a profit.

GrazingFutures impact continued at a similar level of at least three (3) in five (5) attendees choosing to change across the 45 participating graziers. Again, this has been achieved even with the continuing drought through the central and south regions and the rainfall variability experienced even in the north region.

In both 2019 and 2020 surveys graziers reported difficulties they encounter at mapping workshop using Phoenix. It suggests there is reason to recommend that the reports be explored. One way could be for GrazingFutures coordinators to consider how and to whom, they market mapping workshops that use Phoenix.

The following section will consider the data available to report on changes made in business management, animal production and GLM.

6.4 Changes in Animal production, GLM and Business management

In providing events to improve grazier business resilience, drought recovery and future drought preparedness, the GrazingFutures Project focuses on activities that do this through events related to animal production, GLM and business.

When asked in which area/s of management were their changes made the graziers report making 36 changes and Table 6 shows the distribution of them across the three management areas as well as over the three surveying periods.

Table 6 Categories of changes made by GrazingFutures attendees

Value	2020	2019	2018
Animal production changes	27%	49%	39%
GLM changes	31%	18%	16%
Business changes	7%	4%	16%

The percent shown is the proportion of changes made in each management area and is made in relation to the total number of graziers surveyed. That is required here to maintain the same basis for comparison with the way these figures were reported in previous survey results. The process used was chosen originally by the way the data was recorded as part of the Grazing BMP process in use by GrazingFutures at that time.

A comparison between years needs to consider the following context notes:

- Grazing BMP was a central mechanism for identifying events to run in each region and that is reflected in the 2018 survey reporting and it incorporated a module 'People and Business'
- For surveying in 2019 and 2020 the survey reporting regions chose events based on project objectives and regionally identified needs as Grazing BMP had been withdrawn from use by AgForce
- Drought has persisted in many districts of the central and south regions in all years
- No surveying was done in north in 2019 following a damaging rainfall event that required DAF and partners to allocate much of their resources to recovery activities
- That between years the types of events chosen vary.

Regionally the proportions making changes to animal production were central 33%, north 20% and south 25%.

6.4.1 Animal production changes

Examples given by the 27% of graziers choosing and reporting making animal production changes after GrazingFutures events were described by graziers in this way:

- *'Tagging and record keeping of this drop of calves'*
- *'Faecal sampling to decide on the components of a lick which we mix ourselves as before that were buying a commercial lick which was more expensive'*
- *'Use a urea and salt own lick for all cattle'*
- *'For nutrition we have done dung sampling to know what we require and our samples showed we didn't need to change; we did change the amount of P we fed to increase it in line with what was presented at the workshop for mulga country'*
- *'Now feed lick with P'*
- *'Trialling M&U + P on first calf heifers of herd'*
- *'Change type of P to avoid any possibility heavy metals accumulating in meat and it being rejected at meat works, as the presenter said our current source could be contaminated.'*

Sixty-seven percent (67%) of graziers expect the benefit to be evident in less than 24 months with the remainder expecting it to take longer. Comments made on the reasons they selected the timeframe include:

- *'It takes a long time to see a difference to the number of marked lambs however it is happening'*
- *'Will keep heifers as replacement and select on what records we have and sell steers at 18 months'*
- *'From looking at the cattle, which I do each day, they appear more focussed on eating and are not bellowing'*
- *'For the P, I can't compare the change as readily in dry as it takes time before it shows up in increased pregnancy'*
- *'Early mating of heifers and we are testing to trial and see how it goes'*
- *'When the year is right for establishment then within 8 months the Leucaena is grazed'*
- *'Expect 12 months visual for the cattle and the 2 years until can measure in terms of calving rate and weight gain etc'*

Half (50%) of graziers expect an improvement in ground cover from their animal production changes and examples of their reasons include:

- *'As we use feed budgets to decide when to shift stock'*
- *'We do stock lightly to keep our pasture on the country'*
- *'Can tell from the recorded weights how cattle are doing in relation to gain/day and we'll know if we need to change paddock sooner to leave enough feed in the paddock'*
- *'Even this year we took extra cattle off in January and it rained late February/March and that (lighter stocking) will allow pasture to rejuvenate''*

- *'We'll increase calving rate without adding adult cows so it is an indirect benefit to ground cover.'*

Others' comments explained why, for them, ground cover wouldn't increase e.g. *'Rain and roo numbers affect ground cover more,'* and, *'It was for production'*.

Also, for those choosing animal production changes 92% expect an improvement in gross margin and profit from the animal production changes made, and they can explain that profit enables them to stay in business. One said it like this, *'Profit is what keeps us here and able to be sustainable'*.

Examples of how they explained why they expect a profit are:

- *'We will use records to make better decision about what to keep'*
- *'From increases in lambs marked'*
- *'There is a possibility of profit which is the purpose of doing it, from selecting the best animals'*
- *'Better condition and more calves over the 12 months'*
- *'Through increased pregnancy rates in all years as pregnancy rate is related to profitability'*
- *'From the supplement the cattle are looking in better condition as it helped stomach bugs in the dry season and they were more ready when it rained and the pasture responded'*
- *'The healthier our cows are the higher will be our pregnancy rates'*
- *'Will increase carrying capacity'*
- *'Through increases in conception and getting pregnant again'*.

All are realistic animal production outcomes that explain the increased returns.

An interpretation made from the 2019 surveying was that the then generally higher market prices for cattle were assisting graziers to make decisions to remove stock to protect their pasture. In the next section on GLM changes made, the report considers if there is evidence of this happening again.

6.4.2 GLM changes

At 31% of properties choosing to make changes in GLM practices this is a substantial increase from the 18% in 2019 and has exceeded the proportion making animal production changes. The GLM changes made were most often to trial ways to increase water infiltration and/or improve pasture quantity and quality by planting new species.

Examples of how graziers describe the changes made are:

- *'A water ponding trial of 6 ponds'*
- *'Water ponding banks and other banks to hold back water and also we use leaky weirs to slow water flows in creek lines and we intend to do more'*

- *'Contour bank to spread water and on a number of flat swampy areas where water runs through we have diversions and leaky weirs'*
- *'Mapping whole property - can have too much on any one map so do layers e.g. map contours plus layers like roads and troughs and tanks etc; used mapping to identify where water infrastructure is needed and design diversion banks to stop erosion'*
- *'We have trialled the deep ripping in 2 places to stop erosion and get more ground cover e.g. could plant Rhodes and Wynn cassia - to control Pimelea'*
- *'We now wet season spell and only have to feed urea lick after July which allows us to get 0.3 to 0.4kg/day'*
- *'Plant grass and legume species to improve pastures; select better soils and fence as exclosures and plant there; depending on the year we open the improved grass exclosures to the cattle, say 500 in the whole paddock, and they go in for a month to 2 months; it gives them good feed and they prefer it so that spells the rest of the paddock by going there, they can come and go to water and all we do is open the gates (to let them into the exclosure) so don't need extra musters'*
- *'The plant identification gave us new knowledge on the stage of growth and when to stock and spell'*
- *'Measure mulga browse when we do feed budgets and we use feed budgets to set stocking rates and to decide when we rotate cattle to spell paddocks'*
- *'Planted 3-400 acres legumes and grasses and fertilised'*
- *'Trialled doing water ponding on 1,500 acres harder country.'*

Graziers regularly added comments demonstrate they do know that their GLM practice changes are dependent on rain and whether or not they have sufficient of it, *'It does completely depend on seasons and whether or not there is rain'* And, *'it does depend on season and the amount and frequency of rain'*. They have taken the proviso on rainfall into account and gone ahead with the change believing they will benefit through better pasture productivity.

Forty percent (40%) reported expecting to implement these changes on 50-100% of their property. For another 40% of graziers the impact is expected on only less than 25% of their property. In the case of techniques to improve water infiltration it can be noted that they are terrain specific and can be expensive to 'install'. Those constraints may limit the on-property level of implementation and so graziers are looking to remove the constraints, *'What we intend to do is ponding on our country to suit the terrain/slope; cost of equipment is high and we don't know that an individual can afford it so I have brought up the idea with our local producer group.'*

It is different for practices like mapping and the pasture assessment which can impact on more of the property directly and are more likely to do so at a lower cost than do other practices involving surveying and earth works.

Of the changes made to GLM, 71% of graziers expect the beneficial impact to be evident in from 12 to 24 months. That proportion is similar to the proportion expecting the impact of their animal production changes to be evident in the same timeframe.

For the graziers who've made GLM practice changes 93% have either already seen that it will increase ground cover, *'Evidence is clear as we had rain on our trial sites this summer and the benefit is obvious!'* or they expect it will do so, *'Through its impact in our feed budgets on our stocking rate'*.

Other examples of how graziers reported the reason they think ground cover will increase are:

- *'Through grass cover improvement on our mulga soils'*
- *'Even with the flood the trial rings have held up'*
- *'From slowing water, allowing it to go into the soil we get more seeds germinate and grow'*
- *'From the additional moisture to keep grass growing to seeding'*
- *'With water points more effective – 2.2km apart - and cattle are working paddocks evenly'*
- *'Through less erosion and by the spreading water'*
- *'By holding up water and getting it into the soil and plants will stay in good quality'*
- *'Through the added pasture species and through closing it off to regrow and also though the fact it takes the pressure off the rest of the paddock (while the improved area is open) at the end of the wet season while breeders are mostly using the improved pastures'*.

These responses are examples of how some graziers are using GLM in the service of their enterprise's capacity to improve animal production. They are examples GrazingFutures delivery staff could consider using when introducing events that can impact GLM to the benefit of animal production.

That the GLM practices are meant to increase animal production is supported by the fact that 86% of graziers expect gross margins to increase and 93% expect profit to increase and it is animal production that is the source of income on grazing properties.

Examples of the reasons given by graziers for the increases in profit are:

- *'Initially through better feed and later more numbers'*
- *'Potentially yes because of the pasture grown plus having them (the improved pastures) adds value to property when we sell'*

- *'More feed, more stock feed we didn't have before on our country'*
- *'Any healthy breeders give a higher pregnancy rate'*
- *Through increased carrying capacity particularly*
- *Better productivity*
- *The grass holds on longer and animals will keep adding the kgs for longer e.g. could get 0.6kg/d for a month longer which is significant rather than drop to 0.2kg/d a month sooner.*

While many graziers' comments in this round of surveying suggest they understand the importance of ground cover and pasture condition for productive animal performance they don't often say it in that way. There are some who refer to it explicitly, for example when responding to the question on expectations on profit one said, *'In time we hope it helps with productivity in cattle and also having our land not degraded but made healthier.'*

It is of note that in this third round of surveying GrazingFutures participants it is GLM changes for the first time registering as the larger proportion for those making a practice change. It is neither realistic nor practical to infer anything from this not least because of the influence of particular choice of events presented. It may be possible to infer something with additional data around numbers attending types of events which is something regional coordinators may want to pursue.

6.4.3 Business changes

Three (3) graziers report making changes to their business. The three (3) reported the changes as:

- *'The Excel knowledge allowed us to refine our data processing which we'd been using over the 6 years of drought to assist to improve reproduction rate from 1.5 lambs/ewe/year at the start of the drought with 3000 ewes, to 3/ewe/year with our reduced numbers of 800 currently'*
- *'For me the difference is that I'm having my business analysis done through a professional group which is offered as part of the project - previously used to do it ourselves or with Alison Larard'*
- *'Yes because at 'Data to decision making workshop' there was a refinancing discussion suggesting an independent operator so we went and had our loans restructured'.*

The loan restructuring arose for discussion in a technical workshop rather than one on that topic. In the 2019 report there was a change was made from a source in an off-topic discussion. It is a reminder that graziers attending GrazingFutures events do gain other information and, at times, do use it to make changes. It is an area of GrazingFutures' impact that has not been explored.

Given the descriptions from graziers the direct GrazingFutures' influence on business practice changes here is one (1) grazier i.e. 2%. This level of practice change to business is little different to the 4% reported in 2019.

Both 2020 and 2019 are notably different to the 16% reported as making business changes in the 2018 survey. The delivery mechanism that may explain the variation is the inclusion of the Grazing BMP module People and Business, which drew attention directly to business aspects. Since then fewer GrazingFutures events have focused on business specific activities. It can however, be noted here that it was the business topic of book keeping that none of the three (3) participants showed-up to respond in the 2020 surveying (See Section 3, Respondent selection).

Financial knowledge of a grazing business is explicitly known to be important by some graziers, '*Got to have good financial records - got to know cost of production of 1kg of beef and the cost to run the property*'. Statements such as this have occurred less often in GrazingFutures surveying.

When that knowledge is considered with the proportion making business practice changes it suggests there is scope for more financial input by GrazingFutures to develop those skills in their audience. For that reason a recommendation to that effect will be included in this report.

In the following section it will also be seen there is scope for such work by GrazingFutures.

6.4.4 Business practices compared between 2020 and 2018

In the first GrazingFutures survey year of 2018, the reports included data on the current business practices that group of graziers.

For 10 business practices e.g. annual budgets, graziers were invited to say which they used in their usual business management. All 10 were from the project document *Key Grazing BMP standards for business and drought resilience*, prepared by the project team from landholder suggestions in project activities and subject matter specialists in the DAF GrazingFutures project team.

The questions were repeated in 2020 and a comparison is informative in an interpretative sense as a second set of data. It cannot be used to definitively suggest GrazingFutures has or has not, influenced the differences shown. It is, however, informative as a snapshot in time of a largely different population taken from the same pool of respondents i.e. those choosing to attend GrazingFutures events in the previous 12-18 months.

If there is surveying in the coming year then this could include graziers from 2018 and 2020 surveying where questions to assess any change in business practices and the reasons for it.

Table 7 Business processes in use by respondents 2020 and 2018

Business practice	2020 Yes responses	2018 Yes responses
Prepare annual budgets	62.8%	78.9%
Talk generally with one or more other producers about your business management decisions	53.5%	36.8%
Talk directly with one or more other producers about your business management decisions	51.2%	28.1%
Do business performance analysis	41.9%	28.1%
Have a written business plan with goals*	37.2%	43.9%
I don't have a business plan (of any sort)	30.2%	15.8%
Work with my bank about my business management decisions	30.2%	28.1%
Work with a financial advisor or other service provider (e.g. DAF, NRM group) about my business management decisions	25.6%	47.4%
Have a financial risk management plan	9.3%	15.8%
I make business decisions only when they are needed	2.3%	3.5%

* Graziers often add the comment 'No written business plan but my plans/my business goals are in my head!'

Comparison was made between the two (2) surveys, 2020 and 2018, in which questions were asked about general business management practices, where the variation in the majority of items shows that for the graziers surveyed in 2020 there are fewer reporting:

- Having a written business management plan with goals
- Preparing annual budgets
- Having a risk management plan, and
- Working with a financial advisor or other service provider on business decisions.

There are notable exceptions and they are in the proportion of graziers who:

- Complete a business performance analysis
- Talk **generally** with one or more other producers about business management decisions
- Talk **directly** with one or more other producers about business management decisions

The business practices referred to here are ones that were noted by subject-matter specialists and graziers as valuable for business resilience in times of drought. If and when further surveying is done in more depth to provide expanded knowledge of GrazingFutures impact, it could include a range of graziers from 2018 and 2020 survey groups where questions could be asked to assess any change and the reasons for it.

2020 data is suggesting that business planning remains an area needing input from GrazingFutures if it is to make an impact on grazing business performance and drought resilience. For that reason, it is something regional coordinators may want to consider when they come together to pool knowledge and ideas for delivery.

When doing so they may want to consider that the preference for most graziers is to work with local DAF and other service providers. That preference can make business analysis services more readily useable to graziers if done or led by their local DAF staff rather than a finance specialist. For that reason, it may be useful to look for a tool/s in which delivery staff could become accredited. One such tool is the P2P⁴ business analysis package one grazier reported using in this survey and it is referred to here only because of that.

A recommendation will be made that GrazingFutures coordinators include at least two (2) events in their next 12 months that build grazer financial business skills and knowledge. An example of a start event may be 'grazing business literacy' presented by local staff. As well it is recommended that they look for one or two tools local delivery staff could apply in GrazingFutures work.

⁴ Information at <https://p2pagri.com.au/> (accessed July 5,2020)

6.4.5 Summary

In this 2020 survey of 45 grazing businesses participating in GrazingFutures events show graziers were prompted by those events to make management changes in the areas of GLM, animal production and business.

It is the first time in three (3) surveying activities that GLM changes have predominated with 31% of properties choosing to do so and this is a substantial increase from the previous high of 18% in 2019. The GLM changes made were most often to trial ways to increase water infiltration and/or improve pasture quantity and quality by sowing new species.

Fifty percent (50%) of graziers making changes in animal production and 93% making changes in GLM, expect ground cover to increase. While many graziers' comments in this round of surveying suggest they understand the importance of ground cover to enhance pasture condition for productive animal performance they don't often say it in that way.

Almost all graziers report they expect their changes made in animal production and GLM to improve gross margin and profit and, while not stated regularly, that response is to be expected otherwise they would not undertake the change.

Comparison was made between the two (2) surveys, 2020 and 2018, in which questions were asked about general business management practices. The comparison showed where the variation in the majority of practices exists with fewer graziers reporting doing the practices of:

- Having a written business management plan with goals
- Preparing annual budgets
- Having a risk management plan, and
- Working with a financial advisor or other service provider on business decisions.

The observation of fewer doing some practices is something GrazingFutures coordinators and collaborators may want to consider as they plan for their future project events. The inclusion of events that support graziers to "work on their business" as well as 'work in their business' is recognised as a means to improve business performance. From that can flow business preparedness and resilience in the face of drought or other risks. It is something regional coordinators may want to consider when they come together to pool knowledge and ideas on delivery of GrazingFutures events, which has been recommended previously.

6.5 Other practice changes

As well as being asked to identify specific changes related to the topic of the GrazingFutures events attended (Table 8), graziers were also asked to identify any other changes made following GrazingFutures events. Twenty percent (20% = 9 respondents) reported they had (Table 8).

Table 8 Making other changes

Value	Percent	Responses
Yes	20.0%	9
No	80.0%	36

Of the nine (9), four (4) reported no other change earlier in the survey discussion and those 4 were future focussed i.e. yet to occur, 'Applied for a scholarship to learn more on rehydrating the landscape'.

Examples of comments in response to being asked of other practice changes are:

- *'Started tags since last year (to measure progress) more accurate production targets'*
- *'From the pest management workshop, I will go about removing some roos a little differently for pest management'*
- *'The water infrastructure is in for one paddock...hold up was putting a pipe under road'*
- *'In general, we now aim to do best practices to keep our perennial grasses in better condition and have better groundcover'*
- *'Worked with DAF and planted Mitchell grass in one paddock and held a field day to show - result is good now where we planted some years ago'*
- *'Have put some timber or rocks to slow the water in channels and creeks to get grass and stop bank erosion'*
- *'This is for the future – for the information on nutrition as the host they did dung sampling on our cattle and we got the results and we'll do more in the future'.*

One referenced an earlier Nutrition EDGE workshop that is showing a benefit now:

- *That was a major change event for our management – now have a small cement truck - mix own feed – and now have branded 90% in first and 2nd calf heifers'*

The changes reported as "Other changes from attending GrazingFutures events" can be assessed to draw a similar conclusion to the previous survey, i.e. they show GrazingFutures is delivering change in management practices that aren't always

captured in the initial interview with its focus on delivery of specific events. As such it is support for the inclusion of such a question and its opportunity for additional comment.

As well it may be generating responses that demonstrate a mostly unmeasured impact of GrazingFutures i.e. spin-off practice changes that are not generally noted for the project. This too should be considered in future surveying.

7 Recommendations

It is clear from the data reported here that there have been positive advances in the effectiveness of GrazingFutures events in achieving the project's objectives. It is especially so in relation to the proportion of graziers who are making management changes. When taking those gains into account it is also reasonable to suggest that GrazingFutures can continue to progress in the development of how and what extension services it delivers for improving business and drought resilience.

With the idea of what the grazer survey responses indicate from the 2020 surveying, the following recommendations are made:

Recommendation 1

That GrazingFutures coordinators include at least two (2) events in their next 12 months that build grazer financial business skills and knowledge. An example of a start event may be 'grazing business literacy' presented by local staff. As well it is recommended that they look for one or two tools local delivery staff could apply in GrazingFutures work. Ideally the tools would be ones local graziers already use.

Recommendation 2

It is recommended that for all GrazingFutures events, specific attention be given to the design and delivery of them for impacts known to align with improved business resilience, drought recovery and future drought preparedness and that those delivering make clear reference to that application 'on-farm' and provide examples of what other graziers are doing to apply it in their drought management.

Recommendation 3

That regional coordinators meet before they finalise their annual operational planning to exchange ideas on what events they will focus their region's resources on. This will use the experience of the co-ordinators to broaden the delivery options in use in GrazingFutures in each region.

Recommendation 4

That the GrazingFutures project manager and coordinators explore the grazier feedback of mapping workshops in each region over the time GrazingFutures has been in operation, and that they use that information to make decisions on the tool/s to be used in future mapping events to suit the graziers attending.

Recommendation 5

It is again recommended that for at least one of the management practice changes that is being recommended, that the project team use the ADOPT tool to assess the expected level of and time to adoption that will promote improved business and drought resilience. That the team then use the roadmap provided by ADOPT in planning delivery to increase the rate of practice change.