Final report

PDS: GIRL POWER: Prioritising Heifer Performance.

Project code: L.PDS.2018

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Date published: 21 February 2025

PUBLISHED BY
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Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

Abstract

Nutritional feed-bases for beef cattle grazing in the Desert Uplands Bioregion of central-west Queensland can be managed to enable maiden heifers (in self-replacing breeder enterprises) to achieve critical mating weights (CMW) for their first joining as two-year-olds.

As with other Australian rangeland beef producers, prolonged dry periods and its associated pasture decline, plus inherent low soil phosphorous levels, challenges successful, initial reproductive performance in these young breeders.

For four years of the Girl Power Project, three focus PDS and nine supporting core properties in the Desert Uplands focussed on their heifers and young cows, to understand further and then ameliorate these constraints and related environmental and management challenges.

Concentrating on CMW and time and length of joining, these 12 participating producer entities more closely observed, monitored and recorded specific data for three consecutive age cohorts of their replacement breeders. This engendered confidence to continue and/or refine existing practices; or to adopt and implement improved practices based on new knowledge and skills in heifer management learnt through project participation.

The majority of participants experienced maiden heifer conceptions above 80% and first calf cow re-conceptions above 70%. Across the project's four years and 12 properties, rainfall was in the top 20% of annual totals. These better seasons lifted pastures these heifers grazed from birth through to weaning their second calf.

Executive summary

Background

The Desert Upland Committee (DUC) identified poor reproductive performance and growth rates of replacement heifers as key factors affecting the long-term productivity and profitability of beef businesses in the Desert Uplands (DU) Bioregion. Young breeders, constituting about 40% of breeder herd, significantly impact overall reproductive efficiency, especially when calf losses in maiden heifers and low re-conception rates in first calf breeders are high. This poor performance makes producers more vulnerable to business impacts, such as weather extremes, and reduces their resilience to and recovery from future challenges.

Despite available information and training, there has been limited research on improving maiden heifer performance to maximize their lifetime productivity. The Cashcow project (2014) highlighted issues like calf loss, phosphorus impact on fertility, and endemic diseases but lacked data on heifer growth rates, critical mating weights, and optimal calving times. Vibriosis prevalence also affects conception timing in some regions. The project aimed to provide clarity on achieving 84% conception rates in maiden heifers and over 70% re-conceptions in first calf cows, helping managers identify and improve aspects of their heifer management plans to elevate overall production. Critically the Girl Power Project showed the value of property-specific data and its analysis, whilst referencing current research/extension (i.e. recent MLA Tips & Tools) and peer datasets, to inform and direct realistic advancement of their breeder herd composite.

Objectives

By January 2024, in the Desert Uplands bioregion of Queensland:

1. 10 core producers will demonstrate and assess the potential of heifer best management practices (BMP) to increase:
    a. Conception rates of maiden heifers to minimum of 84%,
    b. Re-conception rates of maiden heifers to minimum of 70%
2. Cost Benefit Analysis on the two PDS to determine the financial impact of implementing heifer BMP in the DU at the two PDS.
3. Increase the knowledge, skills and confidence of 10 producers to implement heifer BMP.
4. Showcase the PDS and core producer results and encourage adoption of heifer BMP by 50 attendee producers through field days and other activities

Methodology

Two sites of focus participated as producer demonstration sites (PDS) to prioritise performance of a minimum 50 maiden heifers over three successive year cohorts. The reproductive performance and related aspects of these novice replacement breeders, as maiden heifers and then as first calf cows, was monitored and recorded.

MLA Tips & Tools on Heifer Management was used as a template for various causal factors and management strategies explored including:

- Critical mating weights
- Time of joining
- Phosphorus status
- Internal parasites
- Endemic disease

- Stocking rates/nutrition
- Supplementation
- Dystocia and calf loss

This PDS did not incorporate replicated trials for the anticipated factors affecting heifer performance in the Desert Uplands. An additional group of ten core producers provided another layer of observations that assisted in identifying and assessing the impact of factors affecting heifer performance. Knowledge, attitude, skills and aspiration (KASA) surveys provided insight to practice change and adoption as well.

Key findings

- Reproductive success and management**:** Increased conceptions in maiden heifers and first calf cows significantly enhanced herd gross margin per adult equivalent ($GM/AE). Achieving critical mating weight (CMW) was crucial, with higher conception rates observed when heifers were joined as two-year-olds (27 months). Seasonal conditions with above-average rainfall and feed availability also contributed to higher conception and re-conception rates.
- Heifer management practices**:** Effective heifer management, including maintaining a Body Condition Score (BCS) of 3.5+ at calving, was essential for re-conceptions. While producers were generally not prepared to reduce the joining period for heifers to less than 84 days, they were willing to use foetal ageing to shorten the calving period if numbers were sufficient. Focusing on heifer management improved the reproductive management of the entire breeder herd. There were significant improvements in heifer management practices, including weighing maiden heifers prior to joining (38% before, 88% after), annual pregnancy testing (50% before, 88% after), and assessing heifer body condition at calving (0% before, 87% after).
- Effective communication and events**:** The project delivered ten events (field days, workshops, and webinars) with 130 observers attending, and 20 communications through various outlets, enhancing knowledge and skills in recording and organising business financial data, which would encourage Cost of Production and gross margin per AE analysis.
- Enhanced producer confidence and engagement**:** Access to heifer management information and extension activities, including valued "in paddock out of the shed" field day presentations, significantly boosted producers' confidence in their practices and led to higher levels of participant engagement. More broadly, the Girl Power Project validated a focus on young replacement females, prioritising their management and preferential pastures.
- Management practices and plans**:** Before the project, only 10% of participants had a formal heifer management plan, which increased to 75% drafting a plan and 20% formalising it by the project end. However, accurate recording of weaning percentages was not widely adopted (due to additional time and resources needed when yard-processing these young mothers).
- Phosphorus supplementation and soil quality**: T**he vast majority of paddocks had low to very low soil phosphorus levels (0-9ppm). Initially, 63% of producers provided phosphorus supplements to heifers, increasing to 100% through project participation.

Benefits to industry

The project provides regionally-specific data sets that producers can reference, which supports the adoption of better management practices tailored to their unique conditions.

The Girl Power Project has successfully raised the profile and importance of nurturing replacement females in the rangelands. This has not only engaged producers but also garnered media attention, highlighting the significance of this issue within the industry.

These benefits collectively contribute to improved reproductive performance, better management practices, and increased resilience of beef businesses in the Desert Uplands region.

Future research and recommendations

Future research opportunities from the project include continuing PDS to investigate suboptimal breeder performance and feed deficiencies in immature replacement breeders, with robust costings to inform adoption and timeframes. Additionally, further investigation into on-property data decision-making (DDM), its applications and collection impediments, supported by intervention strategies, is recommended. Collaboration with agencies, research organizations, and industry leaders to optimize cost-benefit ratios for deficit feeding, especially during drier seasons, is also crucial.

PDS key data summary table

Project Aim:
The aim of this producer demonstration site (PDS) project is to demonstrate and communicate that Best Management Practices developed from experience and research including within the recently released MLA Tips and Tools on Heifer Management, can cost effectively improve heifer productivity given the limited feed base and native pasture composition in the Desert Uplands (DU) by meeting CMW's and putting selection pressure on maiden heifers primarily through fertility.

	Comments		Unit
Production efficiency benefit (impact) Reproductive efficiency – marking %, weaning %	*Pregnancy%*	84% Maiden 75% First Calf Cow	%
Number of core participants engaged in project		12	
Number of observer participants engaged in project		50	
Core group no. ha		274868	Ha
Observer group no. ha		8099570	
Core group no. sheep		0	hd sheep
Observer group no. sheep		0	hd sheep
Core group no. cattle		11470	hd cattle
Observer group no. cattle		35950	hd cattle
% change in knowledge, skill & confidence – core	*Knowledge in heifer management (somewhat and above)*	80%	
	Skills in heifer management (somewhat and above)	80%	
% change in knowledge, skill & confidence – observer	*Heifer Management Before field day average:*	75%	
	Heifer Management after field day average:	83%	
% practice change adoption – core	*Weighing heifers prior to joining*	50%	
	Assess heifer body condition score at calving	87%	
	Forage budget and assess land condition at end of wet season	50%	
% practice change adoption – observers	*Will develop a formal heifer management plan*	98%	
Key impact data			
Gross Margin / AE	**$258/ or AE** based on BreedCow modelling of 93% maiden and 74% first calf cows. **$229/ or AE** based on BreedCow modelling of 75% maiden and 60% first calf cows.		

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1 Background

The Desert Upland Committee (DUC) identified that the problem of poor reproductive performance and growth rates of replacement heifers was one of the factors affecting the long term, year-in year-out productivity and hence profitability of beef businesses in the Desert Uplands (DU) Bioregion. Young breeders (two to four years of age) constitute approximately 40% of rangeland self-replacing breeder herds. When calf losses in maiden heifers is high (Cashcow,2014) and re-conception rates in first calf breeders is low (Cashcow,2014), the performance of this cohort had a major impact on the overall reproductive efficiency of the breeder herd. Poor reproductive performance of breeder herds makes producers more vulnerable to impacts on their businesses (weather extremes etc), taking them longer to recover and less resilient to future challenges.

Most DU producers operate breeding enterprises. While there is information, training and extension officers addressing these production issues, very little research has been provided on how to practically in extensive grazing entities, improve the performance of maiden heifers and so maximise their lifetime productivity. As example, the large Cashcow project provided no information on growth rates in heifers, critical mating weights of maiden heifers or how to determine the correct time of calving (relevant to regional differences). The project did provide some information on causes of calf loss, the impact of phosphorus on fertility rates and some valuable information of endemic diseases that are causing reproductive loss. The 2019 MLA Phosphorus Challenge, highlighted that one member of the group who participated, returned a marginal P status feedback - 7 out of 20 animals had PIP levels <1.13 m.mol/L which could indicate some of the animals were not consuming enough supplement for one reason or another. Most other members were concerned that they may also need to assess their P supplementation program.

Internal parasites have previously been thought not to be a problem in this region but a trial by Lee Taylor (2019) in the Fitzroy Basin suggested that growth rates of heifers may be impacted in some years. Vibriosis was found to be quite prevalent in some regions in the Cashcow project and also has the potential to have dramatic impacts on timing of conception in maiden heifers in some years. There is very little regional specific, property level-based data publicly available that suits the small to medium size, family operated, rangeland beef grazing enterprises of DU & western Qld.

While most producers understand the importance of maximising female reproductive performance and more specifically heifer management, few would have actual figures to demonstrate impact. Prioritising female reproductive performance and retaining heifers in the herd must also be weighed up against decisions about the limited feed base available in terms of long-term gain for herd productivity vs short term cash flow.

- One of DUC's producer members is also a member of the Western Queensland Regional Beef Research Committee and this project aligned with their two top PDS research priorities: Best Practice Management of First Calf Heifers and Best Practice Management of Phosphorus Supplementation.
- The group were aware of the MLA Reproductive Performance Tips and Tools for Northern Beef Producers published in 2019 and were keen to explore Optimum Time of Joining and Critical Mating Weights (CMW).
- Calf loss in maiden heifers has been identified as a major issue in northern Australia and currently some members of the group do not have a handle on this issue as they routinely don't pregnancy test.

- Updated research on optimum rates of phosphorus supplementation has been published in a revised Phosphorus management of beef cattle in northern Australian Manual (Second Edition, 2023)and this group was keen to incorporate this information into the project.
- It was considered that managers of breeding enterprises in the rangelands of northern and interior Queensland would benefit from observations and conversations arising from the data collected over the duration of the project.

2 Objectives

To demonstrate that Best Management Practices, based on experience and research including MLA Tips and Tools on Heifer Management, can cost effectively improve heifer productivity, even with limited feed base and native pasture composition in the Desert Uplands (DU).

By August 2024, in the Desert Uplands Bioregion of Queensland:

1. **10 Core producers will demonstrate and assess the potential of Heifer Best Management Practices(BMP) to:**

   a). Narrow the mating period in maiden heifers down to 42 days

   b). Achieve 84% conception rates by optimising the timing of this six week mating period; and

   c). Achieve re-conception rates of first calf cows to a minimum of 70%.

By focusing on CMW and prudent time of joining the majority of the 10 core producers attained conception rates in their maidens greater than the PDS target minimum of 84%. None of the Core or PDS producers were inclined to adopt a 42-day mating period. Likewise, re-conception rates as first calf cows exceeded the minimum of 70%.

2. **Cost Benefit Analysis on the two (2) PDS to determine the financial impact of implementing heifer BMP in the DU at the two (2) PDS.**

Individual producers understanding of their Cost of Production (COP) was highlighted from the pre project KASA survey. One of the PDS properties conducted a COP analysis. Their books did not segregate costs associated with the breeding enterprise from those of the growing and finishing enterprise, thus it was felt that the cost concluded did not provide a clear insight.

BreedCow was utilized in an attempt to identify the benefits or otherwise of attaining higher conception rates than the stated objectives and by assuming higher weaning rates (reduced calf loss).

3. **100% of core producers and 50% of observer producers will, or will intend to, collect the appropriate data, and implement heifer best management practices.**

This objective was partially achieved with adoption rates varying for the different practices. From the data collected via the post project surveys of the core producers the following adoption of practices were recorded:

- Weighing heifers prior to joining: 50% implemented or intended to implement the practice with 38% already adopting the practice prior to the PDS.
- Segregating maiden heifers and first calf cows from adult breeder herd: 37% implemented or intended to implement the practice with 63% already adopting the practice prior to the PDS.

- Foetal age/pregnancy test females annually: 50% implemented or intended to implement the practice with 50% already adopting the practice prior to the PDS.
- Assess heifer body condition at calving: 87% implemented or intended to implement the practice.
- Early weaning due to heifers losing body condition: 12% intended to implement the practice with 75% already adopting the practice prior to the PDS.

From observer producers who attended Heifer Management and Feed Budgeting Field Days 98% of producers indicated that 'from the information presented at this workshop I will develop a formal Heifer Management Plan and Early Weaning Strategy'.

4. **100% of core producers and 50% of observer producers will have increased their knowledge, skills and confidence in relation to heifer BMP through field days and other activities.**

This objective was partially achieved with 80% of core producers indicating that their knowledge in heifer management had somewhat to extremely increased and that 80% had somewhat to extremely increased their skills in heifer management.

For the observer producers who attended the Stratford Field day, their knowledge and understanding of heifer management before and after the field day changed from an average rating of 75% to 83%.

5. **Showcase the PDS and Core Producer results and encourage adoption of heifer BMP by fifty (50) attendee producers through field days and other activities.**

The project held specific heifer management forums and communications were targeted to the Core producer's knowledge of Heifer Best Management Practices.

The various published articles (from the DUC media releases) and iconographic exposure of the pink Girl Power Project subliminally encouraged a focus on the young breeder females, with editors then adopting the lexicon for livestock. This piqued interest across Queensland rangeland producers and will encourage wider self-education and lead to adoption of better practices at various aspects and levels, dependant on opportunities with better seasons.

3 Demonstration Site Design

3.1 Methodology

As the Girl Power Project commenced, twelve properties registered for participation. Two properties were recruited to participate as major Producer Demonstration Sites (PDS properties) and ten core properties to support and supplement the PDS properties with their observations and findings.

To better represent the region's land types a third PDS was recruited from the core producer/property grouping in year three.

The major PDS properties had designated heifer paddocks, a minimum of 50 replacement heifers to observe each year, set of scales or access to scales, suitable crush and yards, completed survey to establish current heifer management practices and willingness and rigour to collect and share trial data.

Establishing controls and treatment groups within a short PDS project is near impossible with small 'on farm' trials and budget constraints as well as a lack of scientific rigour. Rangeland paddock effect is a massive challenge, plus paddock security, fire, bull control, and lack of enterprise funds for infrastructure etc. It is anticipated that multiple factors impact reproductive performance in young breeders, so to establish replicated trials for each of these possible causal factors is unrealistic. Hence no controls were implemented, however the core group assisted in identifying and assessing the impact of factors affecting heifer performance.

3.1.1 Critical mating weights and time of joining.

- The PDS and Core producers were provided with a 'Data Collection Sheet' that required actual numbers and dates to be provided for their cohort of maiden and first calf cows for each event over each year of the project.
- Project tags were provided to participants for each year's maiden heifer cohort. As some participants already had a property management tag system in place or more than 100 heifers in their cohort, they elected to record the total cohort using their own tag system whilst others embraced the new practice.
- Participants coordinated pregnancy testing with their private veterinarians or technicians who if able provided foetal ageing data.
- Weights and Body Condition Score (BCS) of heifers were requested to be recorded at their weaning, joining (estimated), pregnancy testing and weaner removal along with the dates of these events.

Figure 1. Girl Power Project data capture sheet

Girl Power Project Data Capture Sheet

1. PTIC% = # PTIC / # HD Joined
2. Calving %= # Branded / #HD PTIC
3. Weaning % = # Weaned/ #PTIC

1. Don't enter data in Green Shaded cells.

MAIDEN HEIFERS

	WEANER				JOINING					PTIC						CALVING					WEANING				
					CMW 340 kg					PTIC															
HEIFER	DOB	Wean Date	Wean Kg	#HD	Joining Date	Duration	#HD	Joining KG	BCS	test Date	#HD Tested	#1st 50 Days	# 2nd 50 Days	PTE	BCS	KGS	PTIC%	DATE	Approx kg	BCS	# Branded	%	DATE	Cow Kg	BCS	# Weaned	% Weaned
#8											0						#DIV/0!					#DIV/0!				#DIV/0!
#9											0						#DIV/0!					#DIV/0!				#DIV/0!
#0											0						#DIV/0!					#DIV/0!				#DIV/0!
#1											0						#DIV/0!					#DIV/0!				#DIV/0!
#2											0						#DIV/0!					#DIV/0!				#DIV/0!

FIRST CALF COWS - (2nd Joining)

			JOINING					PTIC						CALVING					WEANING				
								PTIC															
COW			Joining Date	Duration	#HD	Joining KG	BCS	Test Date	#HD Tested	#1st 50 Days	# 2nd 50 Days	PTE	BCS	KGS	PTIC%	DATE	Approx kg	BCS	# Branded	%	DATE	Cow Kg	BCS	# Weaned	% Weaned
#8	[redacted]								129						#DIV/0!					#DIV/0!				#DIV/0!
#9									0						#DIV/0!					#DIV/0!				#DIV/0!
#0									0						#DIV/0!					#DIV/0!				#DIV/0!
#1									0						#DIV/0!					#DIV/0!				#DIV/0!
#2									0						#DIV/0!					#DIV/0!				#DIV/0!

3.1.2 Plasma Inorganic Phosphorous

Supplying phosphorous in deficient country will result in:

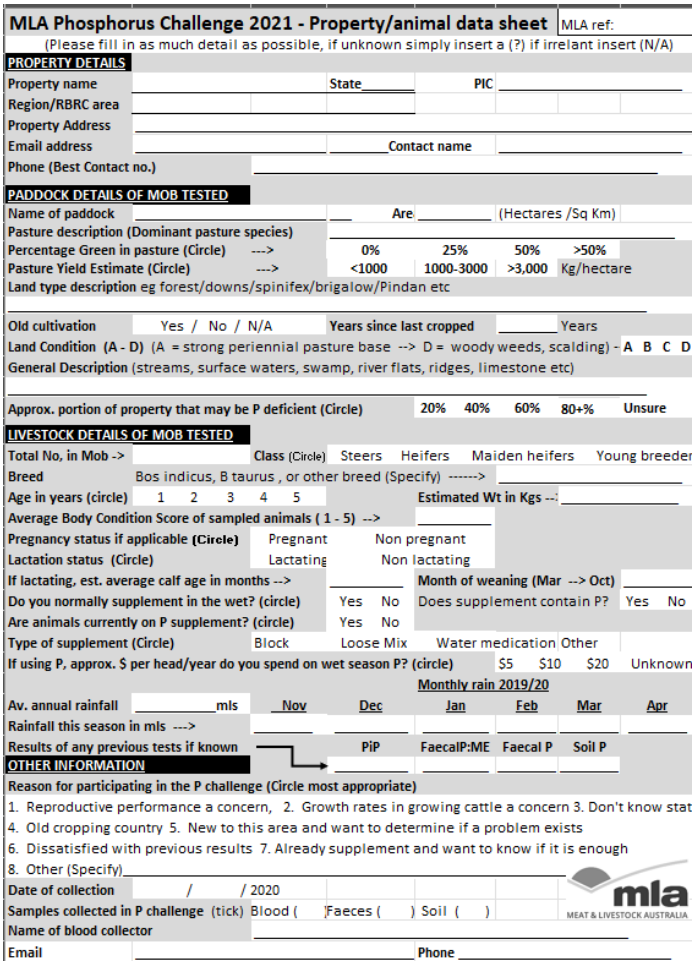
"a higher proportion of heifers attaining critical mating weights and at a younger age" Phosphorous Hub, MLA 2023

Given the inherent low soil Phosphorous of the Desert Uplands, participants were offered the opportunity to provide blood sample for testing to ascertain the soil Phosphorous level of a particular paddock if they did not already know it.

The methodology was that participants contracted their local veterinarian to draw blood from a minimum of 20 individual animals de-pastured in the paddock they wished to assess. This process occurred during the growing season and paddock information etc was collected via a MLA Phosphorous Challenge property and animal data sheet.

For quality data, animals to be sampled should not have access the P supplementation for 2 weeks prior to samples being drawn. They should also, all be from the same class of animals. ie maiden heifers.

Figure 2. Phosphorus data collection sheet used by the Girl Power Project participants.



MLA Phosphorus Challenge 2021 - Property/animal data sheet MLA ref:

(Please fill in as much detail as possible, if unknown simply insert a (?) if irrelant insert (N/A)

PROPERTY DETAILS

Property name _____ State_____ PIC _____

Region/RBRC area _____

Property Address _____

Email address _____ Contact name _____

Phone (Best Contact no.) _____

PADDOCK DETAILS OF MOB TESTED

Name of paddock _____ Are _____ (Hectares /Sq Km)

Pasture description (Dominant pasture species) _____

Percentage Green in pasture (Circle) ---> 0% 25% 50% >50%

Pasture Yield Estimate (Circle) ---> <1000 1000-3000 >3,000 Kg/hectare

Land type description eg forest/downs/spinifex/brigalow/Pindan etc

_____

Old cultivation Yes / No / N/A Years since last cropped _____ Years

Land Condition (A - D) (A = strong periennial pasture base --> D = woody weeds, scalding) - A B C D

General Description (streams, surface waters, swamp, river flats, ridges, limestone etc)

_____

Approx. portion of property that may be P deficient (Circle) 20% 40% 60% 80+% Unsure

LIVESTOCK DETAILS OF MOB TESTED

Total No. in Mob -> Class (Circle) Steers Heifers Maiden heifers Young breeder

Breed Bos indicus, B taurus , or other breed (Specify) ------> _____

Age in years (circle) 1 2 3 4 5 Estimated Wt in Kgs --: _____

Average Body Condition Score of sampled animals (1 - 5) --> _____

Pregnancy status if applicable (Circle) Pregnant Non pregnant

Lactation status (Circle) Lactating Non lactating

If lactating, est. average calf age in months --> _____ Month of weaning (Mar --> Oct) _____

Do you normally supplement in the wet? (circle) Yes No Does supplement contain P? Yes No

Are animals currently on P supplement? (circle) Yes No

Type of supplement (Circle) Block Loose Mix Water medication Other

If using P, approx. $ per head/year do you spend on wet season P? (circle) $5 $10 $20 Unknown

Monthly rain 2019/20

Av. annual rainfall _____mls	Nov	Dec	Jan	Feb	Mar	Apr
Rainfall this season in mls --->						

Results of any previous tests if known	PiP	FaecalP:ME	Faecal P	Soil P

OTHER INFORMATION

Reason for participating in the P challenge (Circle most appropriate)

1. Reproductive performance a concern, 2. Growth rates in growing cattle a concern 3. Don't know stat
4. Old cropping country 5. New to this area and want to determine if a problem exists
6. Dissatisfied with previous results 7. Already supplement and want to know if it is enough
8. Other (Specify)_____

Date of collection / / 2020

Samples collected in P challenge (tick) Blood ( ) Faeces ( ) Soil ( )

Name of blood collector _____

Email _____ Phone _____

mla MEAT & LIVESTOCK AUSTRALIA

3.1.3 Forage Budgeting/Stocking Rate/Nutrition.

Utilising in paddock feed evaluations enabled feed budgets to be drafted on the PDS properties in the early years of the project.

Modified Grazing Land Management (GLM) worksheets were utilised to demonstrate how available feed was calculated for the number of stock for the time nominated from the area provided. Total Standing Dry Matter (TSDM) kg was estimated, utilisation rates applied and feed availability determined. More importantly and drawing on the livestock data and stock class

numbers that were provided, Adult Equivalent (AE) ratings could be derived to provide a base for the demand calculation.

Figure 3. Modified GLM Forage budget work sheet (Utilization % and desired residual after grazing inserted)

GRAZING BMP BEST MANAGEMENT PRACTICES

FORAGE BUDGET

Property: Monklands, Alpha		Brigalow			Date: 06/05/21
		Units	Eg.	Your paddock	Explanation/ Manual calculation steps
	Paddock size	ha	500		*Write in your paddock size in hectares (1 hectare = 2.47 acres)*
	Length of grazing period	days	60		*Number of days you wish to graze*
	Number of head	Number	300		*Number of cattle you wish to graze*
Pasture supply	Pasture yield at the start	kg/ha	2000		*Estimate of current pasture bulk based on pasture photo standards or cutting and weighing samples*
	Percent leaf drop	%	15%		Estimate the amount of leaf drop/ litter. *Generally 15% in extensively grazed systems; may be more where annual plants dominate or under high density grazing.*
	Leaf drop	kg/ha	300	0	Yield at the start **x** Percent leaf drop
	Percent unpalatable pasture species	%	10%		*Estimate of unpalatable pasture ie. wiregrass and/or old dead material.*
	Unpalatable pasture species	kg/ha	200	0	Yield at the start **x** Percent unpalatable pasture
	% 3P pasture species & palatable annuals	%	90%		Yield at start **-** Unpalatable species
	Yield of 3Ps & palatable annuals	kg/ha	1500	0	Yield at start-Unpalatable species-leaf drop
	Utilization rate	**%**	**30%**		Percent of 3Ps Palatable annuals 30% set stock, 50% rotation.
	Utilization kg	kg/ha	450	0	*Yield of 3Ps X Utilization Rate*
	Actual residual after grazing	kg/ha	1050	0	*Whats kg of 3Ps not utilized so as to allow response to rain events*
	Desired residual after grazing	kg/ha	1000		*How much grass do you want to retain in the paddock after grazing to ensure there is sufficient pasture to respond quickly to rainfall? Min 1000kg*
	Pasture available for graze		**500**	**0**	*Actual residual-desired residual (+ or minus)*
Demand	Average weight of cattle over grazing period	kg	600		(Entry weight + Exit weight)/ 2
	Adult equivalent rating	Number	1.24		*Use Adult equivalent table over page*
	Number of Adult equivalents (AE)	Number	372	0	AE rating **x** number of head
	Daily intake per AE	kg	10		*Assume that 1 AE will eat on average 2.2% of its body weight over the year, which equates to 10kg/AE/day.*
	Total mob intake/day	kg	3720	0	Number of Adult Equivalents **x** Daily intake per AE
	Total pasture demand/ha over grazing period	kg/ha	446	#DIV/0!	Total mob intake/day **x** Length of Grazing period **/** Paddock size
Results	Excess or deficit?	+/- kg/ha	54	#DIV/0!	Total useful available pasture **-** Total pasture demand/ha over grazing period
	Number of AEs paddock will carry to end date	Number	417	#DIV/0!	Total useful available pasture **x** paddock size/ Length of grazing period **/** Daily intake
	Days feed will last with current AE	Number	67	#DIV/0!	Total useful available pasture **x** Paddock size **/** Total mob intake/day.

3.1.4 Endemic Disease monitoring.

Most of the participants maintained a proactive vaccination program for Vibriosis and Pestivirus. In the event of perceived poor pregtesting or branding results, samples were sometimes collected for analysis. Vets were employed to manage the drawing of samples and testing.

3.1.5 Supplementation/ Near-Infrared Reflectance Spectroscopy (NIRS) dung sampling

Participants came to the project with their supplementation programs established.

Desert Uplands soils are considered to range from extremely low through to low in Phosphorous. Moderate levels are found on isolated heavy Brigalow and Gidyea Clays. Protein is often wanting in the winter months and urea widely utilized to stimulate intake of dry feed. Browse (Top Feed) can often contribute up to 30% of the breeding cows intake.

Participants were offered the opportunity to have NIRS dung sampling subsidised.

Notes on faecal sample collection, and sample submission forms were provided (see Appendices)

Producers collected samples and had them delivered to an external consultant who coordinated the testing and interpretation of the sample analysis.

3.1.6 Dystocia and calf Loss

Dystocia deaths and calf losses are suspected of being a problem for young mothers in these extensive rangelands where close and timely monitoring is not possible. Similarly, project heifers and cows were checked by producers and managers during routine water and lick runs, with some additional paddock runs at the height of calving. Paddock and yard counts during stock movements and processing were used to estimate on possible mother and calf mortalities, with assumptions normally made that dry mothers (from PTIC paddocks) suffered calf loss.

3.1.7 Rainfall and seasonal conditions

Lengthy consideration was given to the exceptional seasonal conditions experienced over the duration of the project and is provided in the report.

Properties records, www.longpaddock.com/Forage , and CliMate provided historical and in project event monitoring of rainfall and forecasted feed growth.

One of the PDS and a number of the core participants utilised SDH/100mm/ha metrics to record rainfall and monitor their expected feed response and match stocking rate to carrying capacity.

3.2 Economic analysis

Individual producers understanding of their Cost of Production (COP) was highlighted from the pre project KASA survey as being marginal and of low concern. One of the PDS properties undertook to conduct a COP analysis. Their books did not segregate costs associated with the breeding enterprise from those of the growing and finishing enterprise, thus it was concluded that a Cost of Production analysis did not provide a clear insight. For a thorough investigation to be undertaken, there was more preparation required on behalf of producers than what resources allowed.

Situationally noteworthy is the many preceding dry years, the seemingly increasing erratic nature of seasonal conditions and that many producers have not long introduced pregnancy testing (lacking regional availability) and hence control mating and setting (their property-specific) joining windows. Together these factors, combined with rebuild of breeder herds (from those previous drys and poor seasons), COP is knowingly higher than the aspired-to ‘average’. Whilst producers focus on the macro elements within a swill of change, COP is a consideration once the desired ‘new

normal' eventuates (and even enough over subsequent years of data to be of value to input decision-making).

At the suggestion of Dr Geoff Niethe, Breedcow & Dynama: Herd Budgeting Software Package was suggested as a useful alternative to provide an insight to the financial sensitivity of a starting number of weaner heifers retained with varying conception rates applied. Two scenarios were run:

- 75% maiden conceptions and 60% first calf cow re-conceptions.
- 93% maiden conceptions heifer and 74% first calf cows re-conceptions.

Assistance was sort from DAF Economist Tim Harrison.

3.3 Extension and communication

A communication and extension plan was developed as a part of milestone 1 of this project to outline the intended activities to be delivered to engage with core and observer producers as outlined in the objectives, plus wider dissemination.

At the commencement of the project, core and interested observer producers participated in a Heifer Management Workshop that promoted what heifer management best practice looked like and to ensure that producers' awareness was maximized. A Heifer Management Work Book was distributed and a survey of current herd production performance as well as producers' Knowledge Attitudes Skills & Aspirations (KASA).

The extension and communication activities planned were to empower producers to engage with the project to share their learnings and enhance their knowledge and skills.

3.4 Monitoring and evaluation

A Monitoring and Evaluation Report (MER) was developed at the commencement of the project and was implemented throughout the project.

This included M&E undertaken prior to and on completion of the project. A pre project survey was developed which was filled out by the PDS, core producers and some observer producers to show their knowledge prior to the Girl Power Project.

A similar but separate post project survey was then filled out at the completion of the project by the PDS and core producers.

At each of the field days monitoring and evaluation was done in the form of surveys at the completion of each major event presented to the observer participants.

Performance metrics measured included level of change in participants practice adoption, knowledge, skills and confidence.

4 Results

4.1 Demonstration site results

Using Adult Equivalent (AE) productivity parameter put forward by Paton, McLean and McLennan the majority of the properties participating in the Girl Power Project sit squarely in the moderate growth zone of 100-150kg/year.

Table 1. Property designation, location, production parameters, heifers joined. As defined in the MLA AE Productive Zone report. Col Paton, Ian Mclean and Stu McLennan 2020

Site	District	Steer Mean Annual Kg Gain	Mean Weaner Kg	#Annual Heifers Joined
PDS 1	West Alpha	140	210	350
PDS 2 #	North East Aramac	120	230	190
PDS 3	Narbethong	110	170	150
Core 1 *	West Alpha	150	240	280
Core 2	Narbethong	100	170	70
Core 3	Alice	130	210	90
Core 4 *	Alice	150	235*	180
Core 5	North East Aramac	100	160	170
Core 6	Noth Aramac	120	220	170
Core7 @	North Aramac	110	180	120
Core 8	Belyando	130	230	100
Core 9	Torrens Creek	90	170	120

*Consistently yearling mate, # Opportunity yearling Mate, @ Wagyu.-Yearling mate and weaner heifers transferred to Downs.

The weaner weights and steer mean annual gain data Table 1 above provide key insight into the likely outcome of joining as a yearling (15 Months) or 27 months old heifers.

"A general rule of thumb is that weaning weights >240kg and annual growth rates >150kg/year are essential for yearling mating to be consistently successful" – **MLA Tips and Tools. How do I manage heifers pre-joining to improve reproductive performance.**

The following conversations (4.1.1 – 4.1.10) add further insight to the challenges of heifer management in the Desert Uplands

4.1.1 Seasonal Backdrop

The Desert Uplands Bioregion had historically been a challenging environment for a breeding female - heifer or cow. Highly variable rainfall with long dry periods, very phosphorous deficient and low fertility sandy soils that drain and dry-out fast and native grasses within uncleared natural woodlands has meant a delayed development of the bioregion. Bos Indicus genetics, rural power, poly pipe, supplementation programs and buffel grass has elevated carrying capacity and livestock productivity bioregionally in the last thirty years. As property development continues, and new entrants 'over-reach', this traditional 'calf-factory' country is still hampered by the inherent restraints above, which more severely affects growing young stock hence the replacement females.

"The PDS: GIRL POWER: Prioritising Heifer Performance" was proposed within this context, and drafted at a time that coincided with a prolonged dry period 2011 to 2019 with a brief respite in 2015.

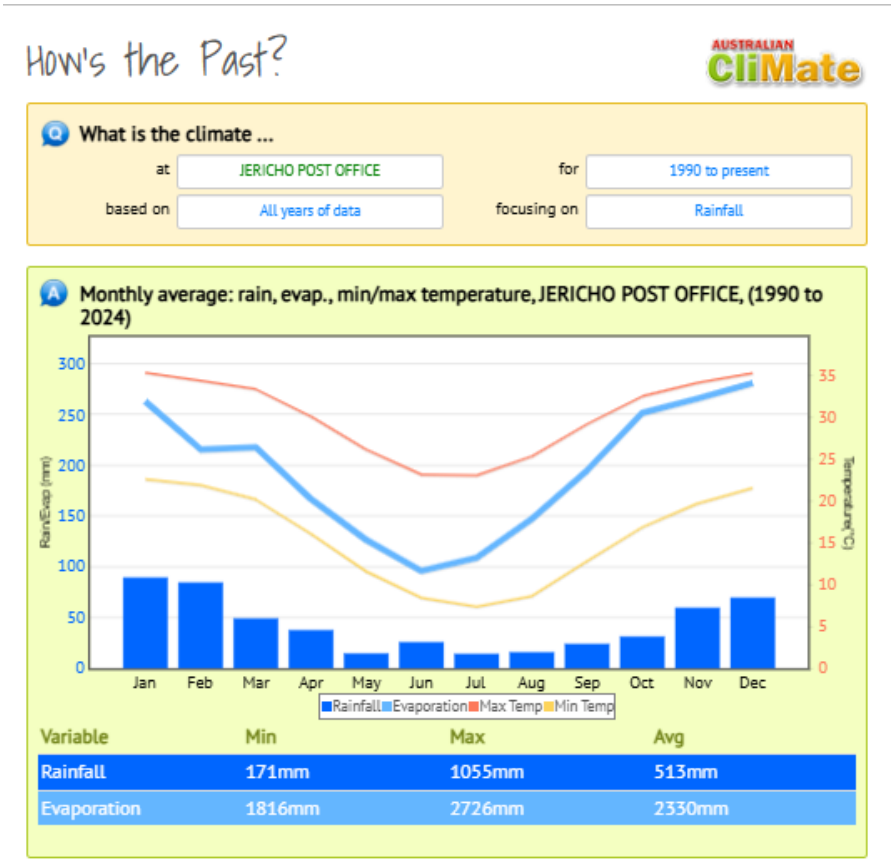
Reducing rainfall each subsequent year over the decade was resulting in less pasture growth and less ground cover and so the pattern perpetuated itself and continued up until the commencement of the PDS in 2020.

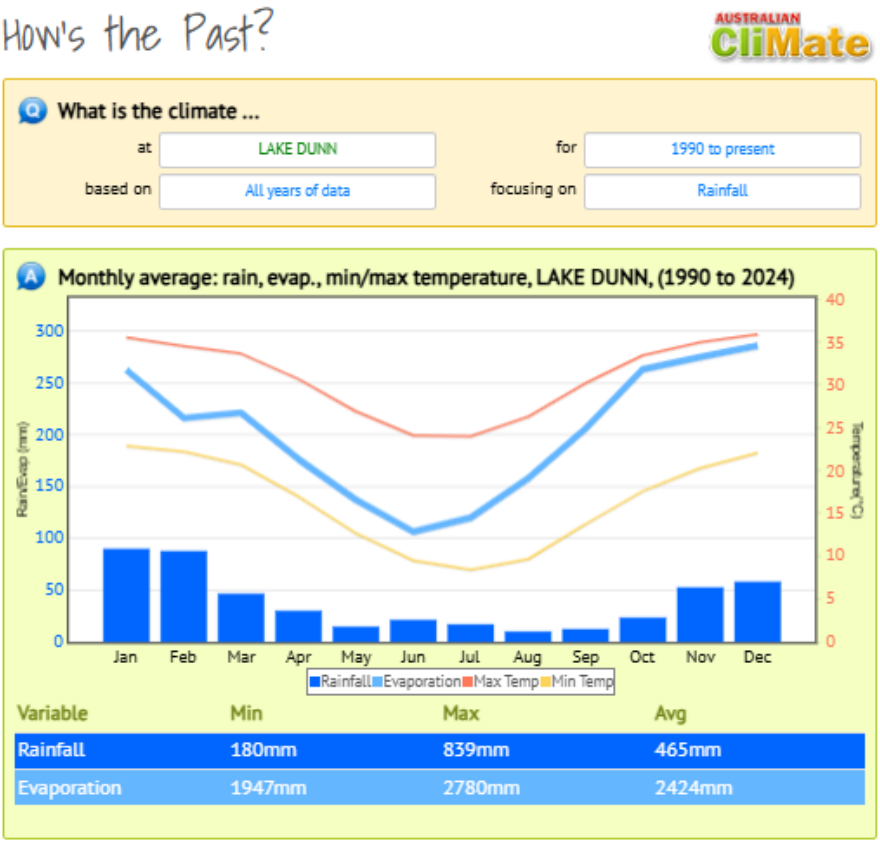
The Girl Power Project experienced a run of above average years during 2020-2023 that provided good growing seasons and wetter winters (which are normally dry, and those sandy soils can grow sweet feed in the cooler months in the DU) and required less than expected management intervention.

4.1.2 Rainfall, Total Standing Dry Matter and Ground Cover.

The following climate and weather data (graphs and tables) for the region show a dominant rainfall during the warmer months with median rainfall of approximately 500 mm (CliMate app).

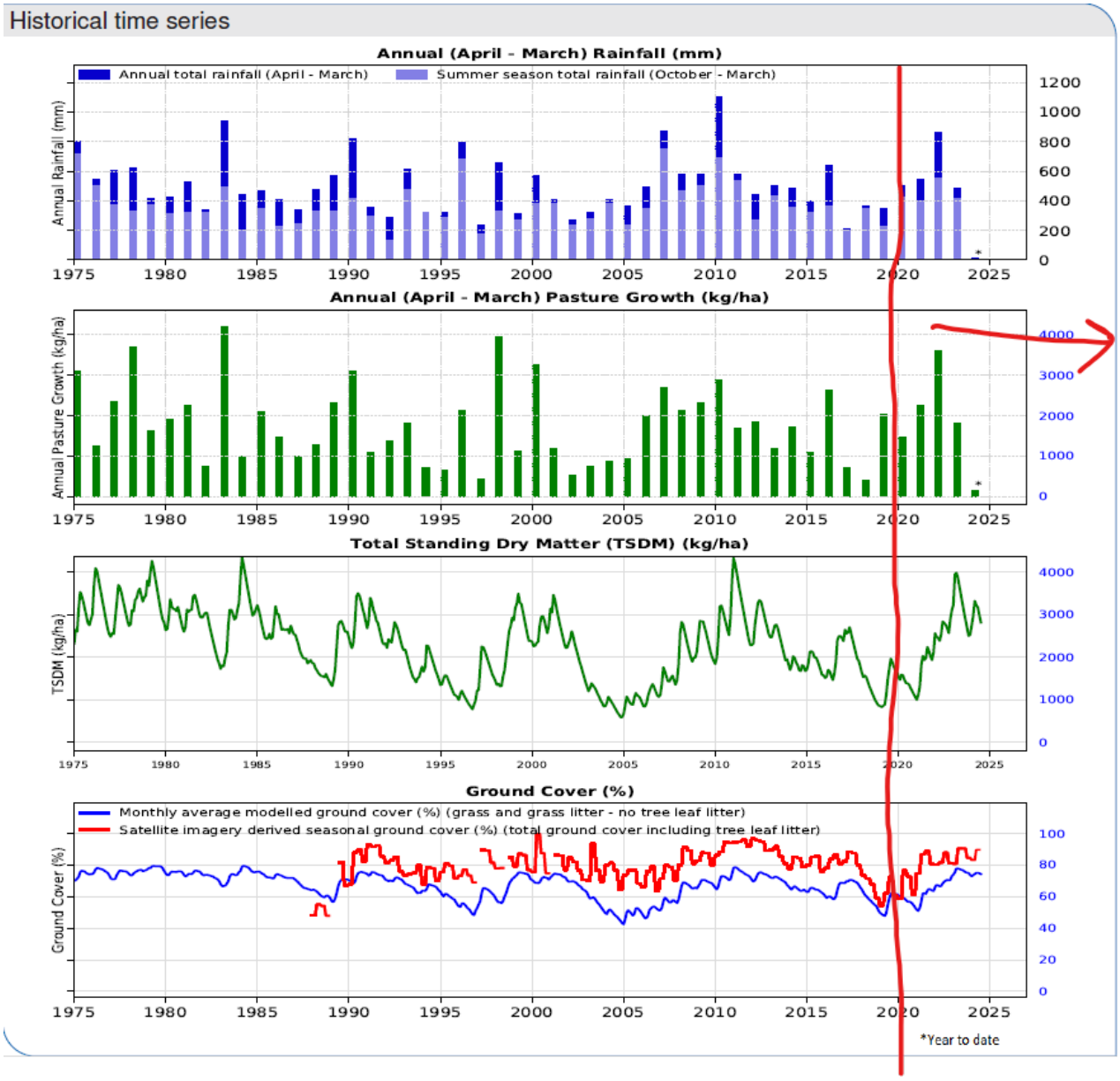
Figure 4. How's the Past? CliMate.com.au. Jericho and Lake Dunn, rainfall and temperature averages





The Time Series from (www.longpaddock.com.au/Forage) reviews the variability in mean rainfall yet the pattern of roughly 10 year peaks and troughs and the subsequent relationship between rainfall, Total Standing Dry Matter (kg/ha) and ground cover % (Forage).

Figure 5. Historical Time Series for PDS1 property, extracted from Rainfall X Pasture X Land type Report (Longpaddock.com.au/Forage).



The above historical Time Series is relevant to the Alpha West PDS location and is representative of the seasonal trends on other PDS and core properties.

The table of charts allows the years 1975 to 2023 to be expressed in the following measure:

- Annual rainfall (mm)
- Annual pasture growth (kg/ha)
- TSDM (kg/ha)
- Ground cover(%)

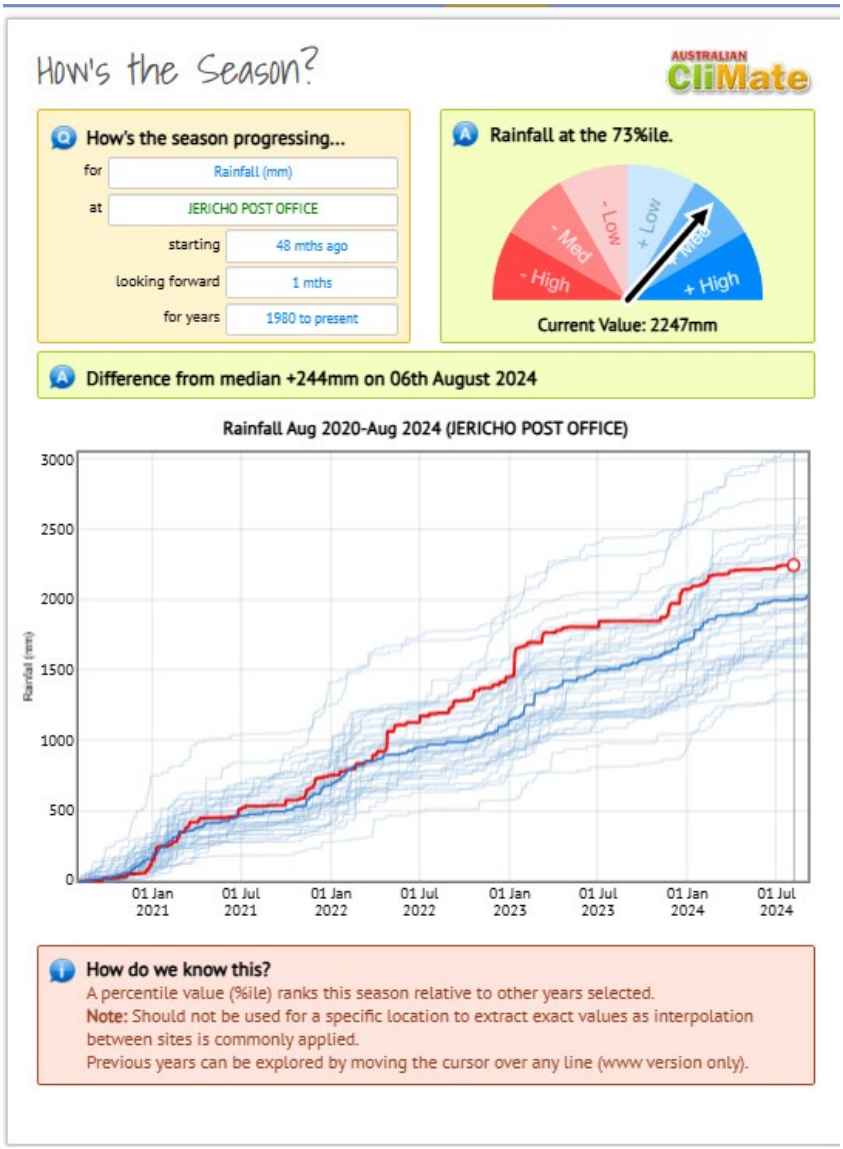
Other than for the 2016 season deviation there is a consistent decreasing trend in all measures in the decade preceding the commencement of the Girl Power project 2010 to 2020.

So as to reinforce the seasonal review, an alternative method of reporting on the rainfall received during the duration of the project, is from CliMate report; How's the Season? from August 2020 to August 2024, and how it ranked against other years from 1980.

Jericho rainfall at 2246mm was within the 73rd Percentile- in the top 27% of years. The median being 2003mm.

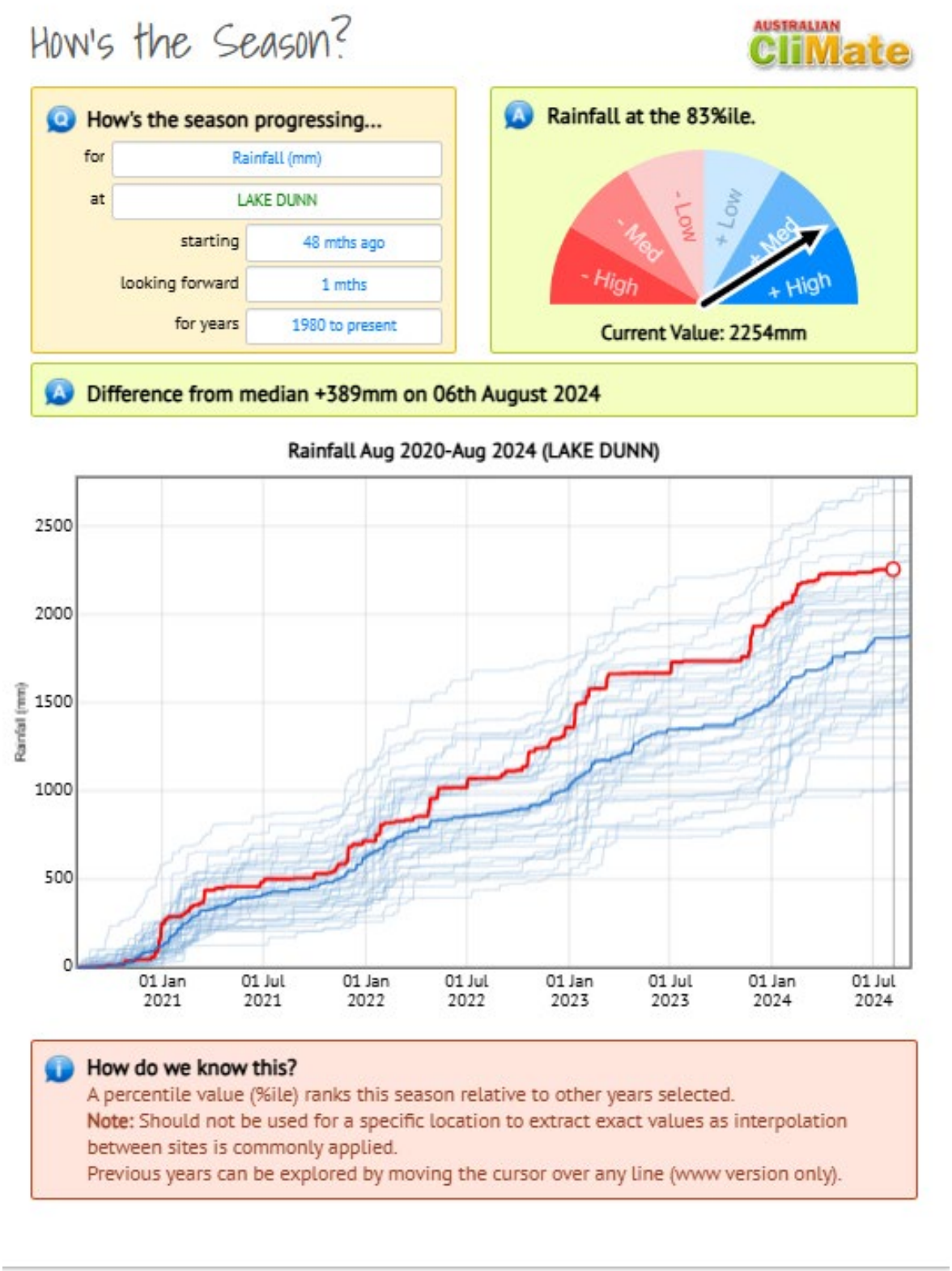
Lake Dunn rainfall at 2254mm was within the 83rd Percentile- in the top 17% of years. The median being 1865mm.

Figure 6. How's the Season? (CliMate.com.au) Jericho. How does this 48-month period compare to other periods/years.



Rainfall in the top 25% of years 2020 to 2024.

Figure 7. How's the Season? (CliMate.com.au) Lake Dunn. How does this 48-month period compare to other periods/years.



Rainfall in the Top17% of years 2020 to 2024.

From 2020 onwards through to 2024, seasonal conditions result in pasture growth within the top 25% of years and increasing ground cover. These two measures contribute greatly to the rangeland nutritional base available to heifers that allowed for CMW to be achieved and surpassed.

Figure 8. Data extrapolated from longpaddcock.com.au/Forage Ground Cover report for PDS 1 property. March 2010 to May 2024.

		Satellite based green Cover (%)	Satellite based non-green Cover (%)	Satellite based total Cover (%)	Satellite based bare (%)
201003	201005	59.3	28.8	88.2	11.8
201006	201008	21.7	72.9	94.6	5.4
201009	201011	21.9	71.9	93.8	6.2
201012	201102	42.4	51.9	94.3	5.7
201103	201105	49.8	44.9	94.7	5.3
201106	201108	13.3	82.7	96	4
201109	201111	5.8	85.7	91.4	8.6
201112	201202	10.3	86.3	96.6	3.4
201203	201205	36.1	59.3	95.3	4.7
201206	201208	16.9	77.9	94.8	5.2
201209	201211	13.9	75.2	89.1	10.9
201212	201302	24.7	64.9	89.6	10.4
201303	201305	21.5	70.2	91.7	8.3
201306	201308	1.3	83.9	85.3	14.7
201309	201311	0.7	80	80.7	19.3
201312	201402	14.1	63.4	77.6	22.4
201403	201405	48.8	36.4	85.2	14.8
201406	201408	9.4	75	84.3	15.7
201409	201411	12.3	66.2	78.5	21.5
201412	201502	45.6	34.3	79.9	20.1
201503	201505	25.6	59.6	85.2	14.8
201506	201508	11.1	74.5	85.6	14.4
201509	201511	4.8	71	75.8	24.2
201512	201602	35.3	42.8	78	22
201603	201605	34.1	49.7	83.8	16.2
201606	201608	31.8	54.6	86.4	13.6
201609	201611	30.6	50.1	80.7	19.3
201612	201702	45	37.2	82.2	17.8
201703	201705	37.3	51.1	88.4	11.6
201706	201708	10.9	76.5	87.4	12.6
201709	201711	5.7	74.2	79.8	20.2
201712	201802	5.9	67.6	73.5	26.5
201803	201805	7.4	64	71.4	28.6
201806	201808	2	65.6	67.7	32.3
201809	201811	1.6	57.6	59.2	40.8
201812	201902	7.4	46.8	54.2	45.8
201903	201905	28.1	34.1	62.2	37.8
201906	201908	35.4	37.1	72.5	27.5
201909	201911	16.9	43.6	60.5	39.5
201912	202002	12.6	45.9	58.4	41.6
202003	202005	18.5	58.1	76.6	23.4
202006	202008	11.7	60.9	72.6	27.4
202009	202011	3.9	57.3	61.2	38.8
202012	202102	49.5	25.3	74.8	25.2
202103	202105	42	44.6	86.6	13.4
202106	202108	15.6	73.2	88.8	11.2
202109	202111	8.7	71.9	80.6	19.4
202112	202202	38.1	42	80.2	19.8
202203	202205	30.1	51.4	81.5	18.5
202206	202208	29.3	58.4	87.7	12.3
202209	202211	33.8	47.3	81.1	18.9
202212	202302	43.2	37.6	80.8	19.2
202303	202305	30.6	59.7	90.3	9.7
202306	202308	10.4	80	90.3	9.7
202309	202311	2.6	81.9	84.4	15.6
202312	202402	46.8	36.3	83.1	16.9
202403	202405	30.7	58.9	89.5	10.5

The blue highlights the period immediately before the commencement of the PDS. Note the increasing ground cover in the green period which was the PDS duration.

The Fig 8. reinforces the below average seasonal conditions experienced at the PDS1 property over the decade immediately prior to the commencement of the PDS reflected in gradual decline in groundcover %.

The graphs and the tables above indicate that as a consequence of generous in season rainfall the TSDM kg/Ha and ground cover improved in 2020 at the commencement of the project and continued to improve for the duration of the project for the next four years.

The table below provides an insight to seasonal conditions during the last two years of the project (2022-2024), how the rainfall and subsequent modelled TSDM Kg/ha compared to the mean of the previous 30 years.

Table 7. Rainfall (mm) and Total Standing Dry Matter (kg/ha) data for each PDS property 2022 to 2024.

PDS property Rainfall and TSDM Kg/Ha Summary Table during the final 24 months of the Project						
April 2022 - March 2023.	**PDS_1**	**PDS_2**	**PDS_3**			
MM	982	810	810			
TSDMkg/Ha	4000	2800	3300			
Ground Cover %	90	85	90			
April 2023 -March 2024						
Last 12 Months MM	471	575	444			
Long Term Mean MM	501	493	470			
Last 12 months TSDMkg/Ha	1949	1349	1416			
LongTerm Mean TSDM kg/Ha	1749	891	1210			
Ground Cover %	74^	70^	75^			
^ Increasing						
Project 2020-2024, coincided with a run of good above average seasons . 2022 was in the top 10% of years. The 12 months leading up to March 2024 show a declining trend towards or below mean recordings.						
*Data Extracted from www.longpaddock.com/au/Forage.						

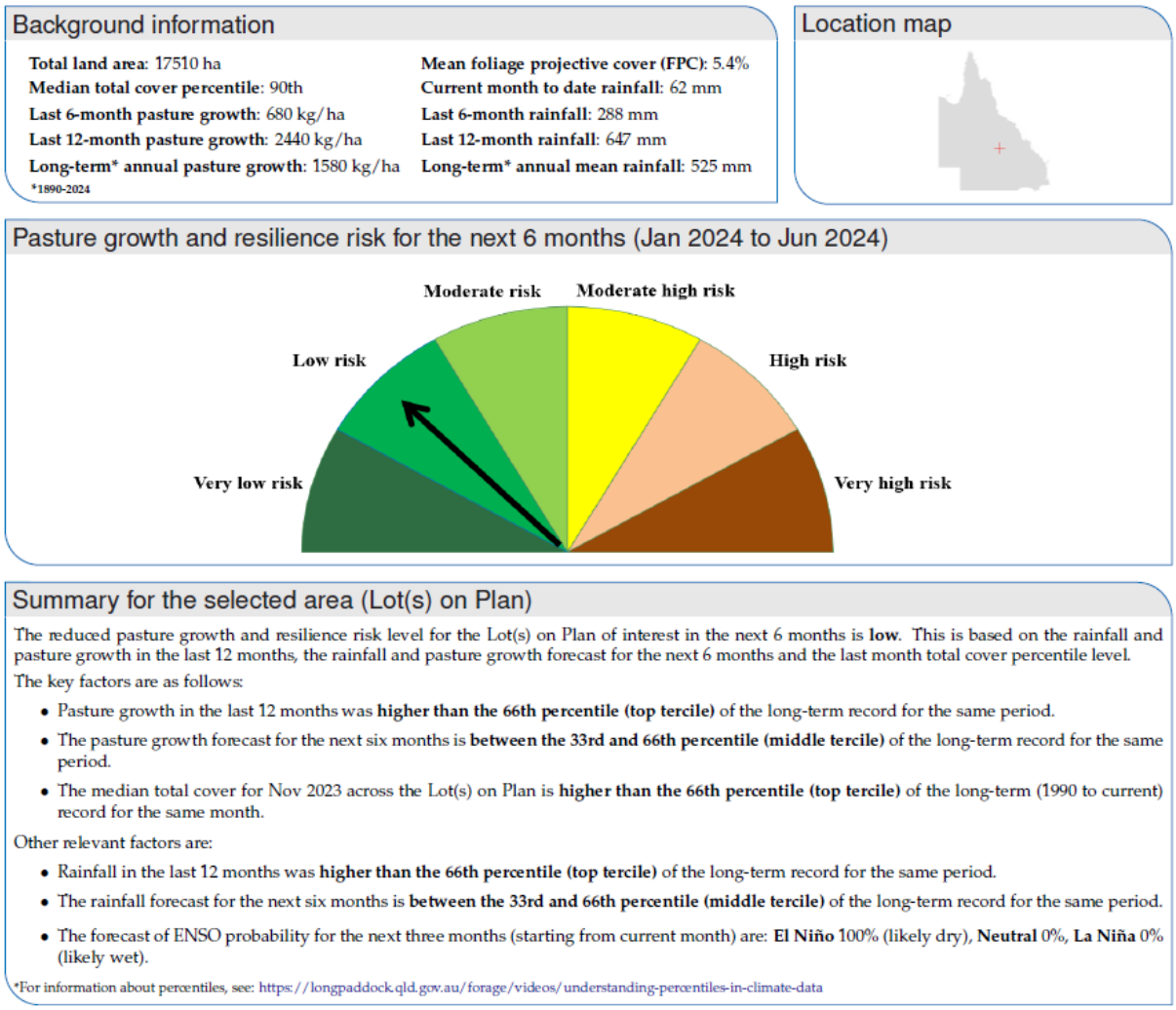
April 2022 to March 2023 was a period in the Top 20%. The season allowed managers to deposit beneficial amounts in grass and ground cover accounts.

The generous seasons of the past three years has seen stock numbers, in particular breeding female numbers surge to levels that once again are placing pressure on the feed base as the season turns. NB the April 2023-March 2024 rainfall received by the PDS properties is trending to amounts equal to the mean or below the mean annual values.

By their very nature, these 12 month rolling figures are very fluid. As an example on the 11 January 2024 the PDS1 property had a rolling 12 month rainfall of 647mm well above the long term annual mean rainfall of 525mm. This had a simulated pasture growth of 2440kg/ha when the long-term average pasture growth is 1580kg/ha (*1890-2024). By March 2024 this 12-month rolling figure had reduced to 471mm and was continuing to trend downwards.

The longpaddock.com.au/Forage/Pasture Growth Alert report Jan 2024 to June 2024 for the PDS1 property (Fig 9) indicates that the pasture resilience is still at low risk based on immediate past management outcomes and future rainfall forecast. It is however this pattern of insidious negative rainfall creep whilst the pasture decline lags behind that herald's the start of the next prolonged dry.

Figure 9. The longpaddock.com.au/Forage/Pasture Growth Alert report January 2024 to June 2024 for the PDS1 property



This type of forecasting tool is a valuable resource to be referred to and taken into consideration during the feed budget process. Such considerations allowed this PDS property to express in meaningful terms that they had enough feed on hand for the heifers and first calf cows

In summary the project PDS and core properties experienced well above average seasonal conditions that enhanced ground cover and pasture availability. Whilst the need for significant management intervention was reduced, attention to recommended practices was rewarded.

The PDS and Core producers were provided with a data collection sheet that required actual numbers and dates to be provided for their cohort of maiden and first calf cows for each event over each year of the project.

Figure 9: An actual completed Data Capture Sheet

Girl Power Project Data Capture Sheet

1. PTIC% = # PTIC / # HD Joined
2. Calving %= # Branded / #HD PTIC
3. Weaning % = # Weaned/ #PTIC

As of 07/07/24

1. Don't enter data in Green Shaded cells.

MAIDEN HEIFERS

	WEANER				JOINING					PTIC							CALVING					WEANING				
					CMW	340 kg						PTIC															
HEIFER	DOB	Wean Date	Wean Kg	#HD	Joining Date	Duration	#HD	Joining KG	BCS	test Date	#HD Tested	#1st 50 Days	# 2nd 50 Days	PTE	BCS	KGS	PTIC%	DATE	Approx kg	BCS	# Branded	%	DATE	Cow Kg	BCS	# Weaned	% Weaned
#8	1/09/17	1/06/18	215	260	19/12/19	102	243	359	3	10/06/20	231	140	75	16	4	436	88%	16/09/20	460	3.5	202	94%	1/05/21	380	3	198	92%
#9	1/09/18	4/06/19	203	280	1/01/21	110	225	348	3	11/06/21	225	125	75	25	3.5	452	89%	7/09/21	485	3.5	196	98%	10/06/22	420	3	190	95%
#0	1/09/19	22/06/20	205	233	1/01/22	98	233	350	3	13/06/22	233	120	81	32	4	501	86%	18/10/22	530	4	180	90%	21/05/23			180	90%
#1	1/09/20	20/04/21	217	375	28/12/22	93	343	353	4	25/07/23	343	93	202	48	4	492	86%	15/10/23	520	4	249	84%	20/05/24				0%
#2	1/09/21	12/06/22	219	413	1/01/24	92	289	343		3/07/24	297	175	93	29	4		93%					0%					0%

FIRST CALF COWS - (2nd Joining)

		JOINING					PTIC							CALVING					WEANING				
									PTIC														
COW		Joining Date	Duration	#HD	Joining KG	BCS	Test Date	#HD Tested	#1st 50 Days	# 2nd 50 Days	PTE	BCS	KGS	PTIC%	DATE	Approx kg	BCS	# Branded	%	DATE	Cow Kg	BCS	# Weaned	% Weaned
#8	[redacted]	1/01/21	98	147	420	3	7/07/21	129	70	53	34	3.00	490	84%	9/09/22	520	4	115	93%	9/09/22	460	3	112	91%
#9		1/01/22	94	258	415	3	13/06/22	221	100	49	72	3.00	436	58%	18/10/22	500		138	93%	1/07/23			130	87%
#0		28/12/22	93	249	450	3.5	18/07/23	266	61	133	28	3.00	482	78%	18/10/23			166	86%	24/05/24				0%
#1		1/01/24	92	295	445	3.5	1/07/24	295	191	76	28	3.50	470	91%					0%					0%
#2								0						#DIV/0!					#DIV/0!					#DIV/0!

4.1.3 Heifer management

MLA Tips & Tools on Heifer Management was promoted to the participants to be used as a template to report on for various causal factors and management strategies and practices that have direct effect on Heifer Performance and

Those to be to be explored included:

- Critical mating weights
- Time of joining
- Phosphorus status
- Forage Budgeting
- Endemic disease monitoring
- Stocking rates/nutrition
- Supplementation
- Dystocia and calf loss

4.1.4 Critical Mating Weights

In line with published information on CMW in Central and Northern Australia (MLA managing heifers pe joining) none of PDS participants had a predetermined CMW for their herds and property.

In the project, base cow herd breed ranged from Bos Indicus through to European infused, Bos Taurus infused to Wagyu. The diversity reinforced established thinking that there are differences between breeds but also within breeds.

The average weight at puberty of various breeds was explored in a 2011 MLA Beef CRC project. Brahmans at 334kg, and Tropical Composites at 329kg. By way of confirming this, two participants whom consistently yearling mate have a ”softer” higher Bos Taurus – composite in their females or are Wagyu and managed satisfactory conceptions at lighter weights.

Given that puberty doesn’t ensure a fertile first reproductive cycle (MLA Tips & Tools), weight gain of the maiden heifers from 60 to 80 days of grazing post-puberty should align with appropriate higher fertility for their first join.

Outcomes:
As Table 1 based on AE Productive Zone shows, annual steer weight gain, three of 12 initial participants had mean annual steer weight gain of >140kg and were mating heifers as yearlings. Each of these participant’s properties either:

a) had some ‘better’ country that was capable of growing heifers to CMW as yearlings; or
b) economics encouraged them to production feed their heifers to CMW weight; or
c) they transferred heifers to country that could grow them to CMW.

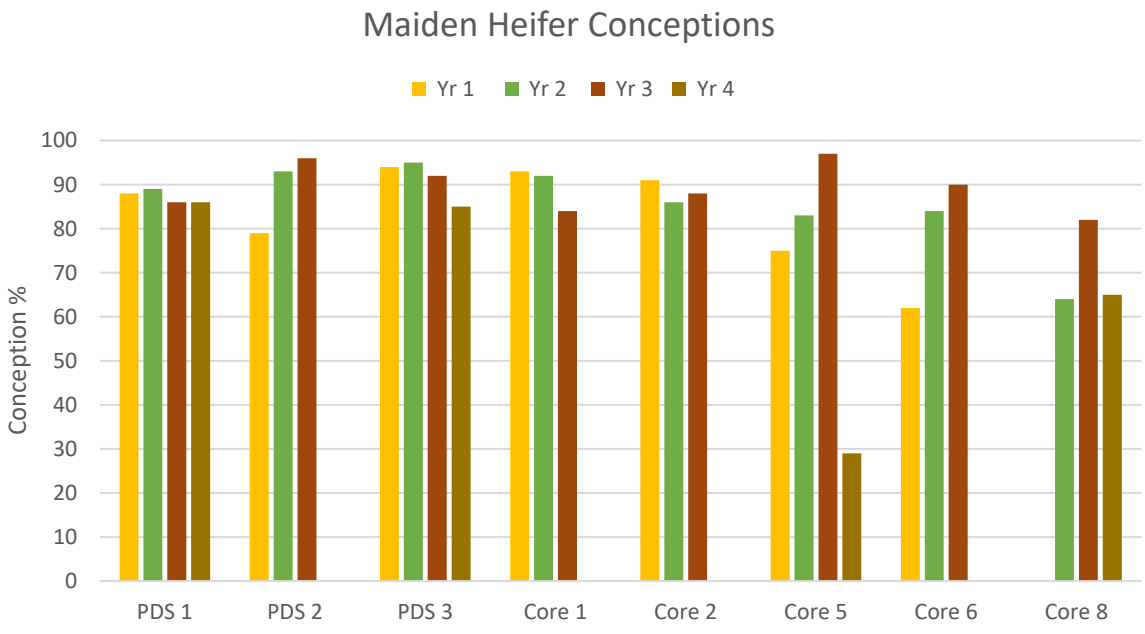
The balance of participants mate heifers at approximately 27 months. Given that these properties also had production parameters within the Moderate Production Zone and weaner weights above 180kg these heifers successfully achieved and surpassed CMW in the PDS project years and in most years will, with attentive management. Three wet seasons on their backs before joining should ensure this critical benchmark is met and more than likely exceeded.

The following Table 8 reflects the weights and conceptions of the maiden heifers and first calf cows over the PDS duration. The average of the three PDS property participants are averaged again, whilst the average figures of all the participants that provided data is presented as range.

Table 8. Weights and conceptions of the maiden heifers and first calf cows over the duration of the PDS

Summary Live Weights, Conceptions and Weaning% Producer Demonstration Sites (3 PDS) and overall Girl Power Project(9 GPP)				
	Maiden Heifer Mean		First Calf Cow	
	PDS	GPP	PDS	GPP
Wean Kg	210	180-240		
Join Kg	347	280-390	450	330-470
PTIC%	90	65-92	76	92 to 30
PTIC kg	460	320-470	490	350 to 490
Calving kg Est	500	370-510 BCS 4	530	380 to 540
Branding %	10	6 to 21	7	5 to 8
PTIC Loss				
Weaning % Loss	3	3 to 6	3	1 to 6

Figure 10. Maiden heifer conception %



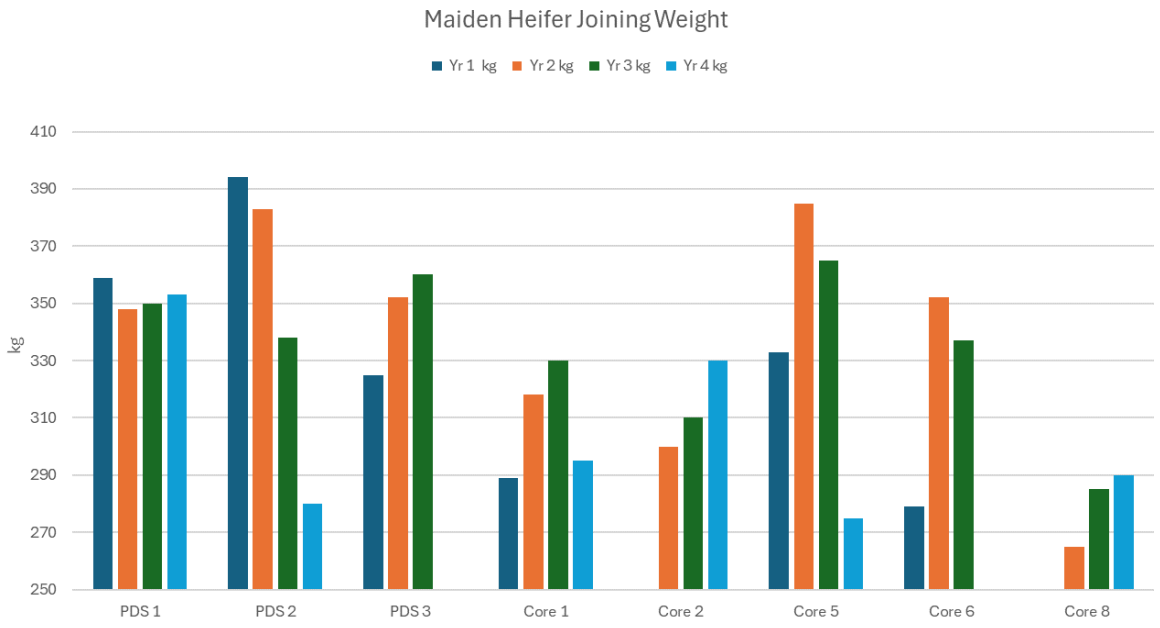
The above graph on maiden heifer conception % 2020-2023 (fig 10) demonstrates that the PDS properties and a majority of the core properties obtained conception rates in their maiden heifers consistently above 84% during the project.

In consultation all these properties commence joining between December and February. Joining periods range from 90 days to eight months and some have difficulty removing bulls or obtaining a clean muster. This pattern can lead to a range of heifer management issues if the goal is to present a cohort of weaner heifers that grow to Critical Mating Weight by first Joining.

The PDS property herds are mated for 90 to 100 days. Whilst this strategy could still present weight range issues they could be overcome by foetal aging selecting those heifers that fall in calf within the first and second cycles. This strategy is to be implemented by one of the PDS properties and is being discussed by the other two as an alternative to shorter joining periods.

Under weight yearling heifers, was observed as the reason for maiden conception rates under 84% being recorded.

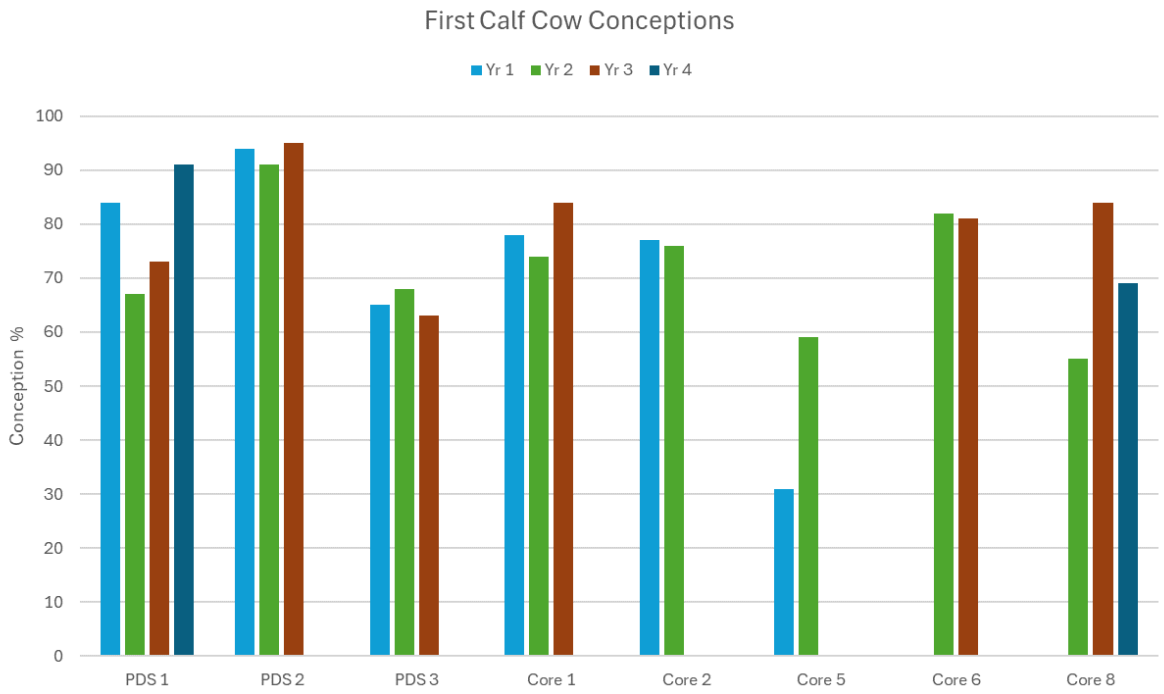
Figure 11. Maiden heifer joining weight 2020-2023.



The above graph on maiden heifer joining weight 2020-2023 (fig 11) demonstrates the mean estimated weight that maiden heifers achieved at joining during the project. Recordings above 330 kgs refer to 27 months old (2yo) heifers. These heifers generally have the advantage of being exposed to three wet season growing periods before mating. Yearling heifers below 300kg need everything in their favour as was the case with those in PDS 2 Year 4 (280 kg 85% conceptions). An introduction of bulls of a breed associated with early puberty, from a herd with measured high fertility in recent years and an upward trending plane of nutrition that continued throughout their maiden joining period are considered to be key drivers in this case.

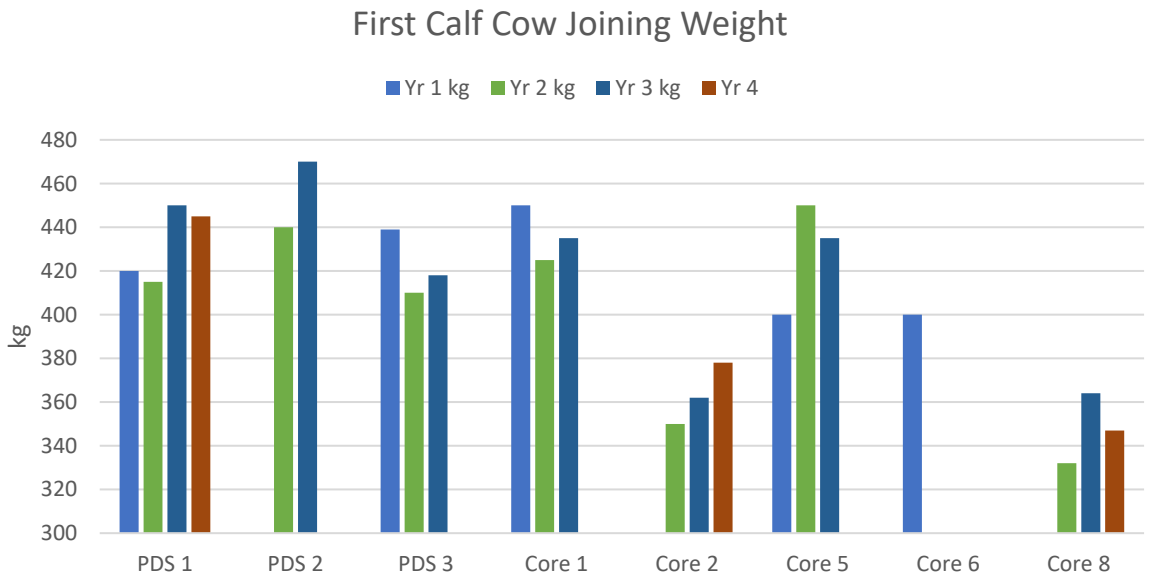
The graph depicts weighing records consistently reported. Not all core properties either weighed their heifers nor estimate the weight of their maiden heifers at joining.

Figure 12. First calve cow conception % 2020-2023



The above graph (Fig 12) shows first calf cow conception rates ranging from 95% to 31%. The higher figures generally associated with good levels of "rangeland nutrition" availability and quality, allowing heifers to be well grown at their maiden joining and with good body condition at their maiden calving, thus resulting in satisfactory re-conception rates.

Figure 13. First calf cow joining weight 2020-2023



The graph at Fig 13 also reflects that not all core properties either weigh their heifers nor estimate the weight of their first calf cows at joining.

4.1.5 Time of Joining.

The vast majority of producers in the Desert Uplands put bulls out with their breeders between December and late January. The key consideration being nutrition and the expected annual pasture curve from summer dominant rainfall. In the spring, evaporation ramps up and storms are unreliable so grass growth is circumspect. Given the summer dominant rainfall the prospect of rains in January is better.

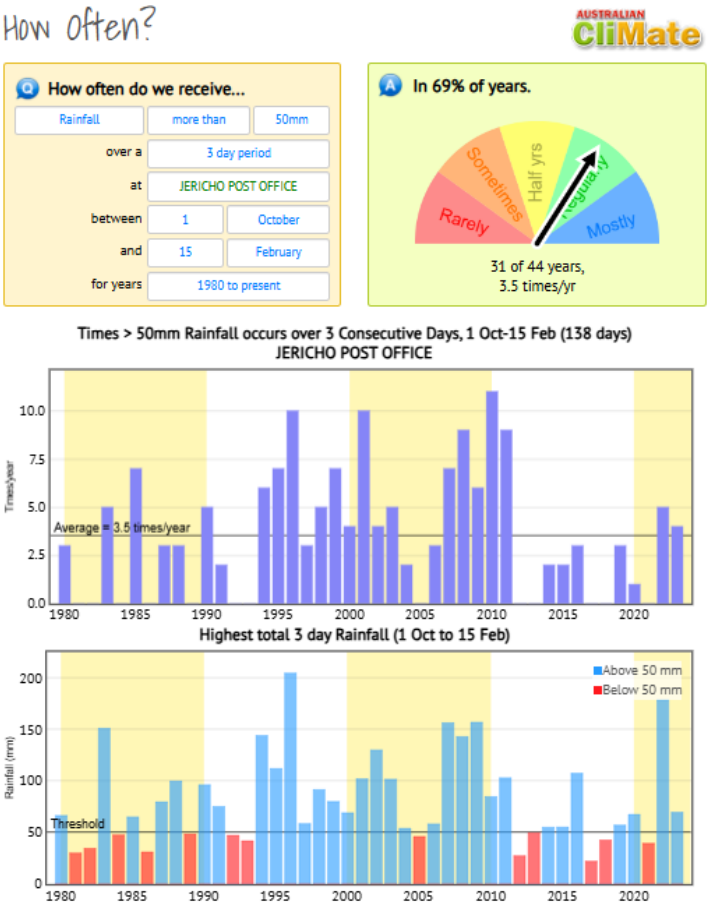
A more specific decision tool that can be used in the summer growing, perennial grass regions, is the property locations "Green Date."

"Green Date is defined as the date after 1 October, that needs to be reached, to receive 50mm of rain over a period of three days in 70% of years".

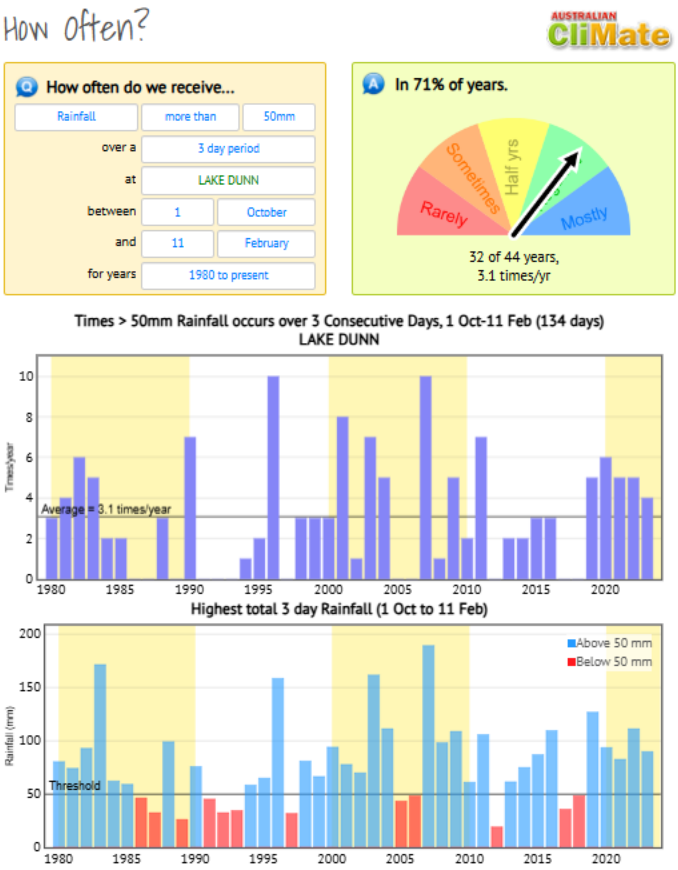
It is recommended to join 30 days after the green date (MLA Tips and Tools, How do I manage heifers pre-Joining to improve reproductive performance) when in those 70% of years an ample body of fresh green feed will be available to naturally stimulate cycling of breeding age females. Below are Green Date displays for Jericho in the Southern Desert Uplands and Lake Dunn in the Central Desert Uplands.

In both cases the Green Dates for these locations in the Desert Uplands is in mid February. It's suggested this is far later than expected by the majority of producers and comes with it significant ramifications for key management date decision making.

Figure 14. How Often? Jericho and Lake Dunn [CliMate: How Often? (climateapp.net.au)]



Jericho Green Date



Lake Dunn Green Date

The Green Date methodology is easily adhered to in the somewhat regular wet and dry season dichotomy of the tropical north rangelands.

As we come south to the Tropic of Capricorn, there are a number of factors challenging strict adherence to the Green Date rule of joining time. Seasonal variation increases as we move south from the Tropics as does the probability of May-June frost terminating the growing season in the Desert Uplands.

It's accepted that the Green Date principles are solid and provide insight to key dates. In formal terms the Green Date for the region is between February 11 and February 15. As shown in Fig 14 above *See* CliMate app "How Often" for Jericho and Lake Dunn.

If we accept there is a high probability of frost by May 30 that terminates the growing period that gives a summer grass growing period of approximately 105 days. Not a lot of time to grow the feed required to carry a breeding herd through to the next summer expected growing period.

Utilising a heifer management calendar, a handy tool for planning the management of heifers prior to and after joining, and this statistical Green Date; joining would start 20th March, with the earliest calves in early - mid December with weaning in June or July depending on the length of the joining period. This explains why most DU beef producers join earlier, so that the weaners do not come off into poorer, late-winter dry feed. The steer weaners can 'go', so it can be a tough start to a heifer's 'teenage years' which can be costly to supplement to get her CMW.

It's not the purpose of this report to propagate the use or the adherence to the Green Date joining rules. However, knowing a properties Green Date is very beneficial when addressing key dates of the pasture growth/ nutrition availability cycle and key dates for herd management and the likelihood of interventions such as early weaning, spike or production feeding prior mating heifers, to the receival of grass producing rains.

As earlier stated, vast majority producers in the Desert Uplands put bulls out with their breeders between December and late January. Using an example of joining starting January 10, pregnancy diagnosis between mid April and mid June, spike feeding to aid calving late August to mid September, approximately 30 days before calving starts 12th October.

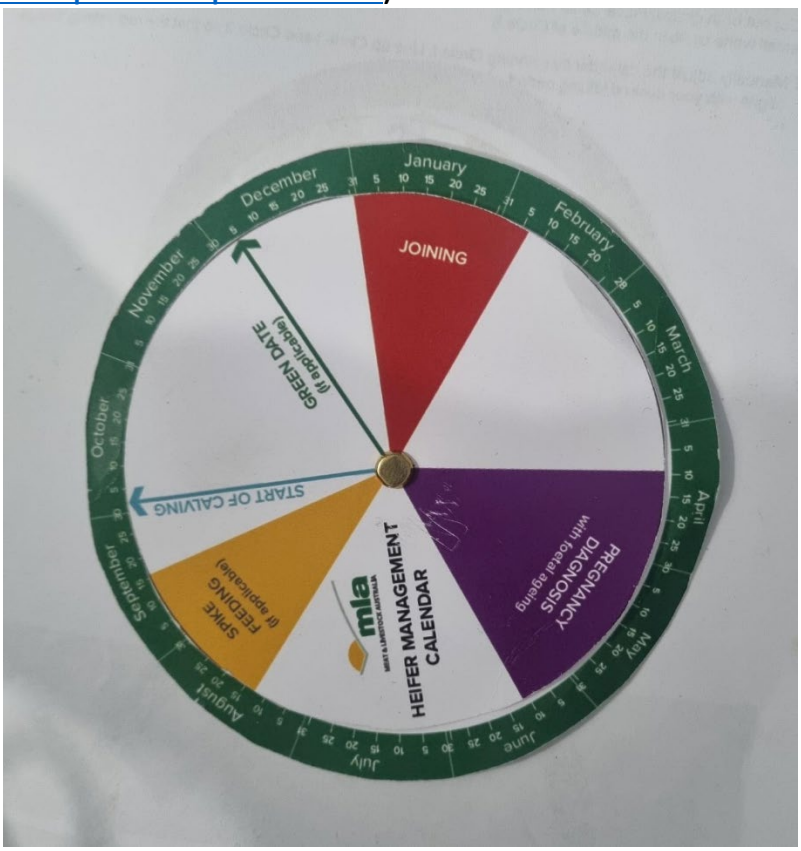
This current practice puts key herd events well before the February 15th Green Date.

- Joining starting 35 days - 65 days before expected flush of green feed,
- Calving starting 120 days before.

Pushing calving 120 days before expected flush of feed places key importance on budgeting available feed for a period of increasing feed demand resulting from lactating females and the assumed feeding of protein based supplements increasing intake of a finite feed source by up to 20%. Here is very good example of how understanding the Green Date and its key dates can aid in management decisions and actions.

It's the maiden heifer at this point that has transitioned to a first calf cow who then re-conceives whilst entering a phase of peak nutritional requirement results in achieving the highest Adult Equivalent rating of any animal on the property. Here she displays the very reason that requires her early growth and development be a focus of Girl Power: Priority Heifer Management.

Figure 15. Heifer Management Calander (MLA Tips & Tool - How do I manage heifers pre-joining to improve reproductive performance?)



Reinforcing the earlier Green Date conversation, it was earlier indicated that nutrition and the annual pasture curve are a major consideration when determining joining date in the Desert Uplands.

As way of example, in the above image of the MLA Heifer Management Calendar, the districts most preferred joining date of January 1 is depicted. Note this would be recommended if a December 5th Green Date was experienced.

Given the districts Green Dates are towards mid February, the consequences for breeder Body Condition Score and the need for abundant feed supply in the paddock between the commencement of calving and probable flush of quality feed in late February cannot be ignored.

Assuming breeders are joined January 1 and conceive over the first 84 Days (4 cycles) calving could run from October to late December. In other terms, out to 135 days before the Green Date. This scenario places considerable risk of stress on lactating breeders until fresh feed is forthcoming. To mitigate the risk, it requires them to be calving in Body Condition Scores of 3.5 and above as well as having ample feed in reserve in front of them until the Green Date plus 30 days so as to be able to carry their calves and not get down too far in Body Condition to reconceive.

For the first calf cow, 90 days after her possible calving, she now has the added pressure of cycling to re-conceive and then if she does, resulting in her having the highest AE rating in the herd. Table 9 below shows a lactating 2.5 to 3.5 year old first calf cow as having the highest AE rating in the herd throughout the Moderate Productivity Zone. It's very much worth noting, the yearling mated maiden heifer is not well accounted for in the Moderate Production Zone as a first calf cow indicating it's not a well-supported strategy. She is however recognized in the High Productivity Zone.

This scenario is well displayed where on most properties in the Desert Uplands where yearling heifers are not joined strategically but find them themselves opportunity mated with a small percentage conceiving. Those who wean a calf have very very low reconception rates. Taken as an indicator these younger first calf cows are often given a year off to catch up in weight to their sisters who are yet to be joined.

Table 9: Adult equivalent (AE) ratings (Col Paton, Ian McLean & Stu McLennan 2020).

	Generic Animal Equivalent Ratings~		
Class of Animal	**High** (>150kg/yr)	**Moderate** (110-150kg/yr)	**Low** (<110kg/yr)
Females <1	0.77	0.68	0.57
Females 1-2*	1.1	0.91	0.72
Females 2-3*	1.74	1.12	0.96
Females 3-4*	1.61	1.49	1.18
Females 4+*	1.53	1.28	1.08
Steers <1	0.8	0.72	0.6
Steers 1-2	1.31	1.03	0.78
Steers 2-3	1.6	1.27	1.02
Steers 3-4	1.52	1.39	1.15
Bulls	1.55	1.52	1.29
Intake per AE Kg DM/day	**7.5**	**8**	**8.5**

In a typical breeder property scenario where the Green Date strategy determines joining and calving periods are condensed, stocking rate in breeder paddocks will increase 20 to 30% due to the changing lactation status of the breeders at a time when feed supplies are diminishing, and nutrition quality is increasingly important.

Recognising the above joining strategy requires management interventions to be implemented, have been reflected in the project findings.

Maiden Heifers under a focused Heifer Management Plan are well grown to achieve or exceed CMW. Their genetic potential is maximised by ensuring the environment they operate in is the best it can be. Fresh paddocks with ample feed to carry them through until 30 days after the Green Date is a very good focus. Results show this in conceptions of maiden heifers and first calf cows during the duration of the project**.**

Further, it's worth overlaying the reality that in many years, dry electric early storms take out considerable chunks of Desert Uplands properties, resulting in a reprioritising of pastures and paddocks with the immediate loss of feed.

4.1.6 Plasma Inorganic Phosphorous

Plasma Inorganic Phosphorous was completed to test cattle for phosphorus status targets in their paddocks/land types.

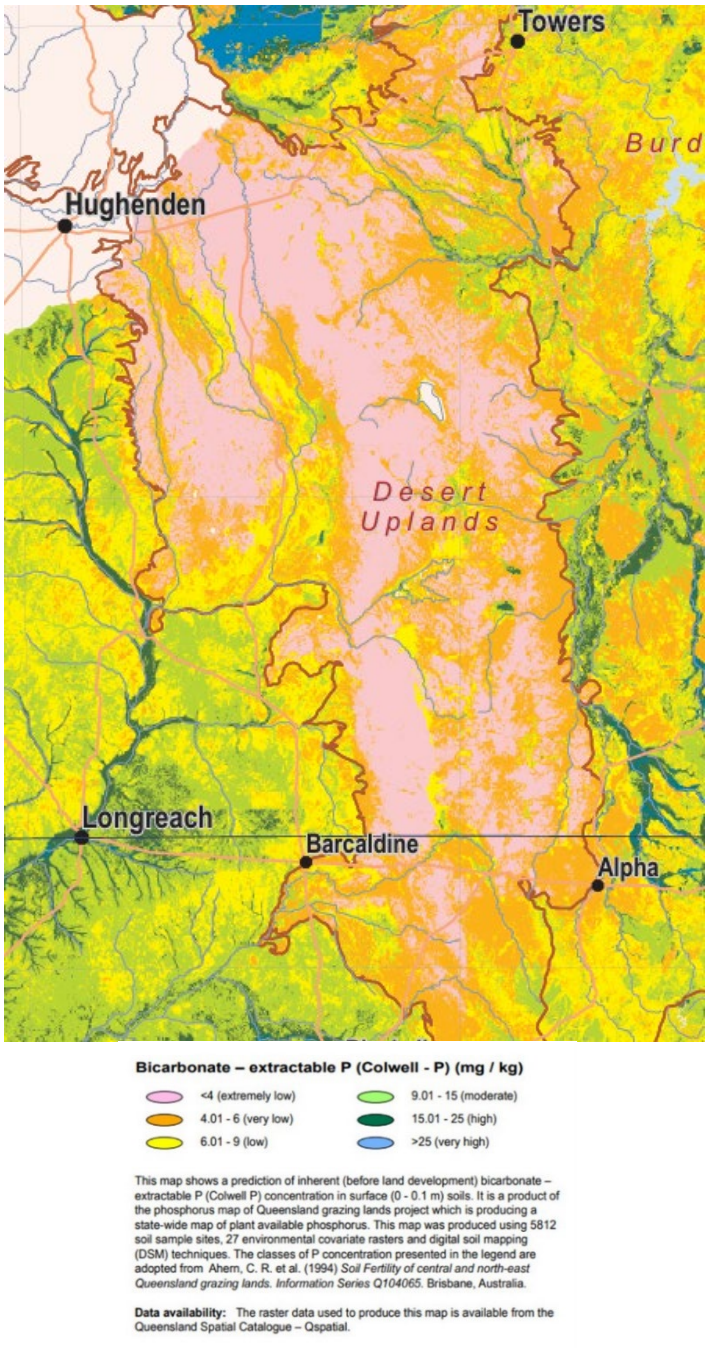
The likelihood of P deficiency in cattle grazing some classes of country is well known from industry experience, for example as acutely deficient (e.g. northern sandy forest) compared with adequate (e.g. Brigalow Gidgee clays softwood scrub).

The P-Screen test is potentially most valuable where there is uncertainty about the P status or the country and/or the mix of soil and country in a paddock makes assessment difficult.

"Target animal age and class groups. The most appropriate groups to sample are young growing steers, growing heifers or mated maiden heifers less than four months pregnant". Mick Sullivan DAF Rockhampton, Nov 2019. Future Beef

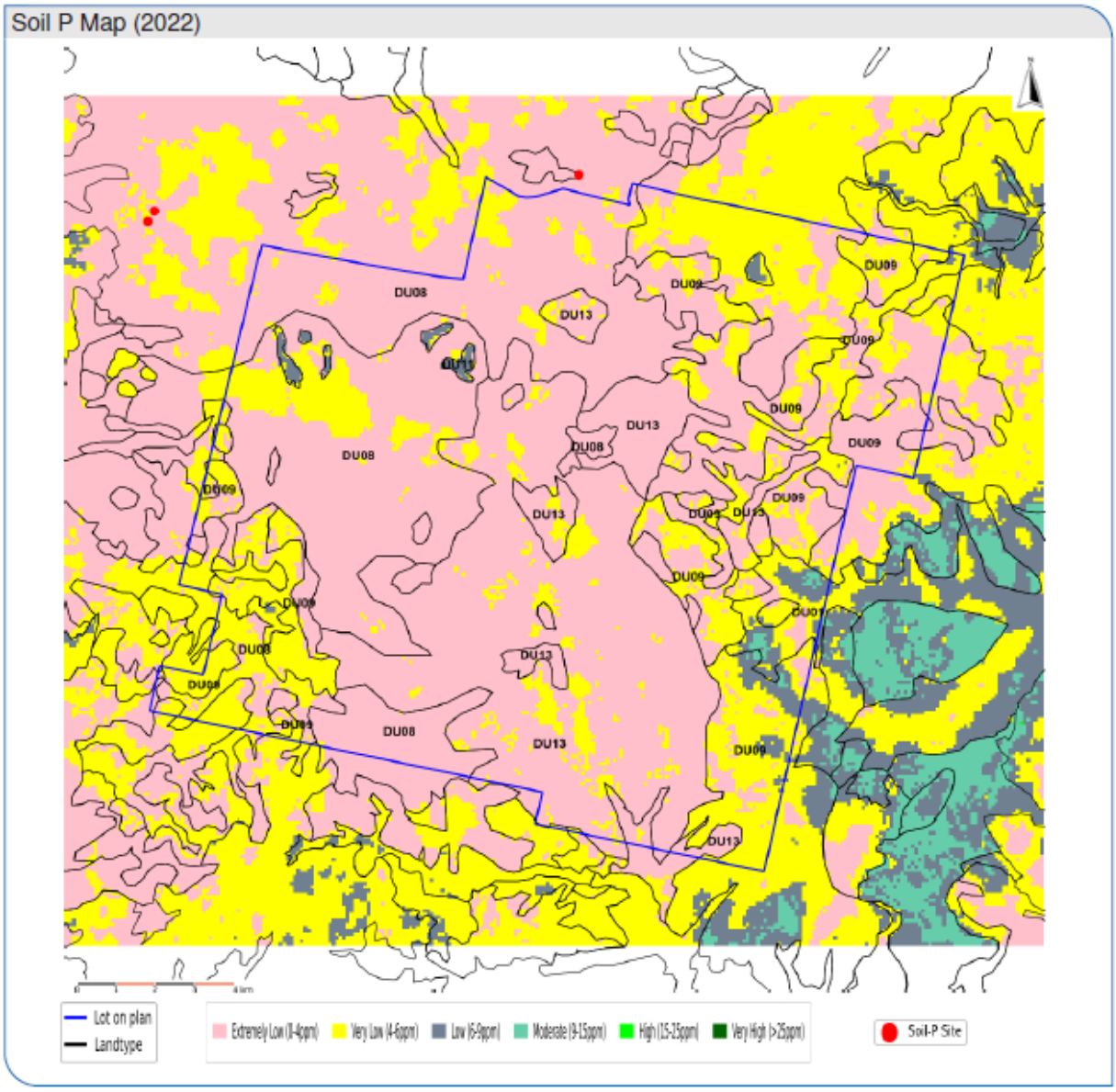
Given the inherent low soil Phosphorous of the Desert Uplands (Fig 16), 60% of project participants elected to submit samples although most of these participants considered their paddocks to be low in phosphorous and were feeding a supplement. Consequently, the results are certainly skewed in favour of higher P readings.

Figure 16. Extract from Bicarbonate P-Colwell Pmg/kg soil map highlighting the Desert Uplands



(Soil and Land resources, Dept of Environment and Science) - Future Beef

Figure 17. Typical P soil map for Desert Uplands property



(Qld Govt www.longpaddock.com.au)

Property sample lots (Table 10) averaged from an adequately high 2.57PiP(mmol/L) to a suspected acutely deficient 1.33(mmol/L). Some samples in this lot<1 mmol/L could indicate very deficient levels and or shy feeders or poor access to supplement.

However, each participant that contributed samples gained an understanding of their supplementation program effectiveness or requirements.

Table 10. Summary of Plasma In organic P levels(mmol/L) submitted by Girl Power project participants in 2021.

Summary PIP 2021.	
Core E	2.54
Obs W	1.33
Obs R	1.51
Core G	2.57
PDS1M	1.59
Core M	1.72
Core B	2.07
Av	**1.91**
Median	**1.72**

Figure 18. Extracted from Phosphorous management of beef cattle in Northern Australia

Table 2.2: Phosphorus status in cattle for a range of plasma inorganic P levels and diet DM digestibility in tropical pastures

Category	Dry matter digestibility (DMD)		
PIP (mmol/L)	>60% (Good pastures)	55–60% (Moderate pastures)	<54% (Poor quality pasture providing maintenance requirements or less)
Growing cattle and breeders not-lactating and up to the last two months of pregnancy			
<1.0	Acutely deficient	Acutely deficient	Deficient
1.0–1.5	Acutely deficient	Deficient	Marginal
1.5–2.0	Deficient	Marginal	Adequate
Breeders in the last two months of pregnancy and early to mid-lactation			
<1.0	Acutely deficient	Acutely deficient	Deficient
1.0–1.3	Acutely deficient	Deficient	Deficient
1.3–1.5	Deficient	Marginal	Marginal

Phosphorous management of beef cattle in northern Australia | 9

4.1.7 Supplementation/Near Infrared Reflectance Spectroscopy (NIRS) Dung Sampling

As has been clearly stated, the Desert Uplands soils are considered to range from extremely low through to low in Phosphorous. Moderate levels are found on isolated heavy Brigalow and Gigyea clays.

Participants in the Girl Power Project came to the project with their supplementation programs established. The project's key focus was ensuring sufficient phosphorus availability during the wet, green growing season, and adequate protein during the dry season to maintain livestock body condition by stimulating feed intake.

According to the MLA paper 'Improved management of cattle phosphorus status through applied physiology'(Dixon, Fletcher, et al. 2020), the importance of phosphorus nutrition and the adverse effects of widespread P deficiencies in cattle grazing the rangelands of northern Australia are well known. P deficiencies decrease growth and increase age of turnoff at slaughter. Productivity is also adversely affected in both heifers and mature breeders with decreased fertility and weaning weight and increased mortality. Although there are generally large economic benefits to addressing P deficiency only a low proportion of cattle grazing P-deficient pastures across northern

Australia are effectively managed and supplemented to avoid the productivity losses due to P deficiencies.

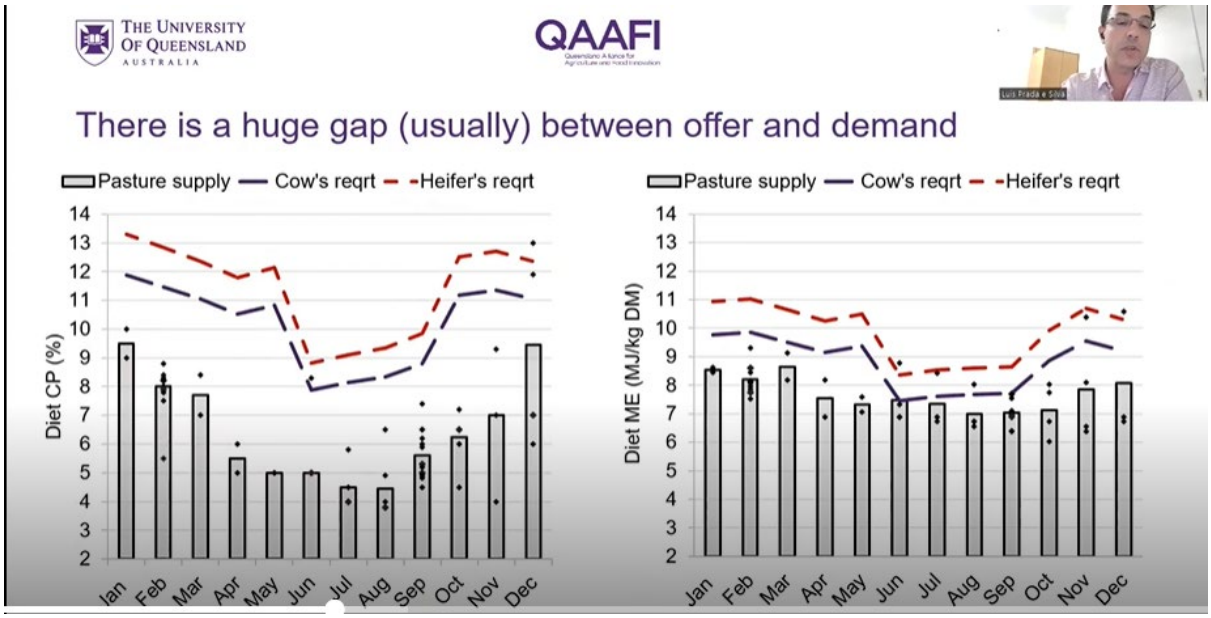
In the dry season/winter months, protein is often lacking and becomes the focus of supplementation programs.

Non-Protein Nitrogen (NPN) from urea is widely utilised to stimulate intake of dry feed whilst Browse (Top Feed) can often contribute up to 30% of the breeding cows intake at this time due to availability of green leaf that is often a positive response of winter rain. Tannins however do restrict nutrient uptake.

An increasing understanding of the role True Protein Meals play in supplying protein at strategic points i.e. six weeks before calving, is encouraging producers' motivation to invest in the infrastructure necessary to distribute these supplements.

The Fig 19 below is extracted from a Zoom presentation with guest presenter: Associate Professor Dr Luis Prada e Silva on the 'Impacts of Breeder Malnutrition'. Data from Jackson & Dixon(1998) shows the timing of and the impact on diet protein (CP%) and energy diet ME(MJ/Kg DM). The graphs show that in Northern Australia, lactation increases demand and weaning reduces demand. This pattern is duplicated in the Desert Uplands.

Figure 19. Diet crude protein (CP) and diet metabolisable energy



PDS participants were offered the opportunity to have NIRS dung sampling subsidised. Results from winter 2021 are captured in Table 11. They collected samples and had them delivered to an external consultant who coordinated the testing and interpretation of the sample analysis.

Table 11. Faecal NIRS Results - Winter 2021.

	Faecal NIRS Results Winter 2021			
	PDS_1M	PDS_2B	Core_M	Core G
Forage Crude Protein%	8	5	8	5
Forage Digestibility5	53	51	54	55
Faecal Nitrogen%	1.6	1.4	1.6	1.3
Metabolizable Energy Intake				
Ash%	17	19	9	27
Non Grass%	32	4	32	11
P% (wet Chem)			0.16	0.35
DMD:CP ratio	6.63	10.2	6.75	11
P:N Ratio	N/A	N/A	0.13	0.44

4.1.8 Forage budgeting/stocking rate/nutrition.

The Desert Uplands Bioregion, as a national Biodiversity Hotspot has a wide range of native pasture plants and browse from trees, shrubs and vines, plus introduced grasses and legumes. This diverse plant ecosystem means the base of perennial grass species, common forbs, and summer annuals are valuable contributors to the feed base. Intermediate species provide additional feed, however if pastures are heavily grazed (especially with urea supplements), the 'lesser' species often increase at the expense of the Palatable, Preferred Perennial (3 P) species. As a result, there is reduced feed availability and an indicator of declining land condition.

As an example, expected and preferred species in an Ironbark land type would be: Desert Bluegrass, Kangaroo Grass, Black Spear, Golden Beard Grass, Forret Mitchell, Soft Spinifex, Buffel Grass, Queensland Blue Grass, Curley Bluegrass, Cotton Panic Bottlewasher grasses, Seca Stylo. These are the best of the best for cattle nutrition in the Desert Uplands.

An increase in non-preferred species, such as wiregrasses, barb-wire grass and wanderrie, indicates a decline in land condition (Future Beef: Desert Uplands region GLM Land Types).

Well managed, perennial grasses contribute significantly to the region's "rangeland nutritional base". Whilst providing important Standing Dry Matter (SDM) their contribution to protein and energy is considerable if managed with stocking rates that reflect the long-term carrying capacity (LTCC) of that country.

Utilising paddock feed evaluations enabled feed budgets to be drafted on the PDS properties in the early years of the project.

Figure 20. Example of forage budgets from PDS properties.

GRAZING BMP

FORAGE BUDGET

PDS1M	Top Paddock	Date: 06/05/20

		Units	Eg.	Your	Explanation/ Manual calculation
	Paddock size	ha	500	382	*Write in your paddock size in hectares (1hectare = 2.47 acres)*
	Length of grazing period	days	60	20	*Number of days you wish to graze*
	Number of head	Number	300	1121	*Number of cattle you wish to graze*
Pasture supply	Pasture yield at the start	kg/ha	2000	3800	*Estimate of current pasture bulk based on pasture photo standards or cutting and weighing samples*
	Percent leaf drop	%	15%	10%	Estimate the amount of leaf drop/ litter. *Generally 15% in extensively grazed systems; may be more where annual plants dominate or under high density grazing.*
	Leaf drop	kg/ha	300	380	Yield at the start x Percent leaf drop
	Percent unpalatable pasture species	%	10%	20%	*Estimate of unpalatable pasture ie. ryegrass and/or old dead material*
	Unpalatable pasture species	kg/ha	200	760	Yield at the start x Percent unpalatable pasture
	% 3P pasture species & palatable annuals	%	90%	80%	Yield at start – Unpalatable species
	Yield of 3Ps & palatable annuals	kg/ha	1500	2660	Yield at start-Unpalatable species-leaf drop
	Utilization rate	**%**	**30%**	**30%**	Percent of 3Ps Palatable annuals consumed. 30% set stock, 50% rotation.
	Utilization kg	kg/ha	450	798	*Yield of 3Ps X Utilization Rate*
	Actual residual after grazing	kg/ha	1050	1862	*Whats kg of 3Ps not utilized so as to allow response to rain events*
	Desired residual after grazing	kg/ha	1000	1600	*How much grass do you want to retain in the paddock after grazing to ensure there is sufficient pasture to respond quickly to rainfall? Min 1000kg*
	Pasture available for graze		**500**	**1060**	*Actual residual-desired residual (+ or minus)*
Demand	Average weight of cattle over grazing period	kg	600	450	(Entry weight + Exit weight)/ 2
	Adult equivalent rating	Number	1.24	1	*Use Adult equivalent table over page*
	Number of Adult equivalents (AE)	Number	372	1121	AE rating x number of head
	Daily intake per AE	kg	10	10	*Assume that 1AE will eat on average 2.2% of its body weight over the year, which equates to 10kg/AE/day.*
	Total mob intake/day	kg	3720	11210	Number of Adult Equivalents x Daily intake per AE
	Total pasture demand/ha over grazing period	kg/ha	446	587	Total mob intake/day x Length of Grazing period / Paddock size
Results	Excess or deficit?	+/- kg/ha	54	473	Total useful available pasture – Total pasture demand/ha over grazing period
	Number of AEs paddock will carry to end date	Number	417	2025	Total useful available pasture x paddock size/ Length of grazing period / Daily intake
	Days feed will last with current AE	Number	67	36	Total useful available pasture x Paddock size / Total mob intake/day.

As already introduced, property specific data for rainfall, ground cover, simulated pasture growth and SDM production is available for every Queensland lot on plan. These data sets go a long way to informing property and herd managers of their pasture base and allowing desktop scenarios to be drawn up before even burning diesel and sunscreen out in the paddock to ground truth and monitor feed supply and demand.

40% of the core and PDS participants in the project had received formal Feed budget training prior to or during the project and regularly carried out feed budget monitoring. Feed budgeting was a major focus of the field days at Monklands, Bede and Stratford.

One of the PDS producers and a number of the core producers utilised SDH/100mm/ha metrics to record rainfall and monitor their expected feed response to match stocking rate to carrying capacity.

Figure 21. Images from the project field days

Figure 22. Laboratory reports bovine venereal campylobateriosis (BVC)-Vibriosis- caused by *Campylobacter fetus venerealis.*

Laboratory Report

Biosecurity Queensland Veterinary Laboratories
Biosecurity Sciences Laboratory
Department of Agriculture and Fisheries

Health and Food Sciences Precinct, 39 Kessels Road Coopers Plains QLD 4108 Australia
email: bslclo@daf.qld.gov.au Tel: (07) 3708 8762 Fax: (07) 3708 8860

Queensland Government

Issued: 5 Sep 2022	Laboratory Report: Final Report	Ver: V1	Job: P22-03424

Date collected: 24 Aug 2022
Date received: 31 Aug 2022
Reason: Health - Terrestrial

Job number: P22-03424
Job manager: [redacted]
Job type: cattle

To: [redacted]

PIC
Owner: [redacted]
Property:
Local Govt:
Address:

Test Results

Analysis: **Campylobacter fetus subsp venerealis antibody detection by ELISA**
Location: Biosecurity Sciences Laboratory - Coopers Plains (13389)
Discipline: Serology Status: New results - test completed

10 Tested 1 positive 5 negative
4 suspect

lab ref	specimen	result	lab ref	specimen	result
1	vagina (swab (pbst))	suspect	2	vagina (swab (pbst))	negative
3	vagina (swab (pbst))	negative	4	vagina (swab (pbst))	negative
5	vagina (swab (pbst))	suspect	6	vagina (swab (pbst))	negative
7	vagina (swab (pbst))	negative	8	vagina (swab (pbst))	suspect
9	vagina (swab (pbst))	positive	10	vagina (swab (pbst))	suspect

End of Results

P22-03424 Extension notes

Interpretation of Campylobacter ELISA: Based on the results of 10 animals sampled, bovine venereal campylobacteriosis (BVC) is unlikely to be present in the herd if all samples are negative. Finding 1-2 positives is consistent with BVC. The disease in this case may not be widespread in the herd. Finding 3 or more reactors indicates widespread infection in the herd. If several animals are reported as "suspect" further investigation (retesting of 10 different animals) could further clarify the BVC status of the herd. Some caution is needed in attributing significance to a high prevalence of seropositivity (>30%) to BVC, as there is evidence that titres can persist for many months and may carry over from one breeding season to the next. In endemically infected herds it could represent infections that have occurred during the current mating period or during previous mating period(s), with the latter cows likely to be immune and thus unaffected by the current exposure. In this case, the degree of infertility will largely depend on the proportion of susceptible cows or replacement virgin heifers being introduced to the endemically infected breeding unit. When a high prevalence of seropositivity is detected, it is reasonable to investigate the presence of infection in bulls mated to these cows, and probably bulls in adjacent paddocks.

Figure 23: Laboratory report for Bovine viral diarrhoea virus (Pestivirus)

Laboratory Report

Biosecurity Queensland Veterinary Laboratories
Biosecurity Sciences Laboratory
Department of Agriculture and Fisheries

Health and Food Sciences Precinct, 39 Kessels Road Coopers Plains QLD 4108 Australia
email: bslclo@daf.qld.gov.au Tel: (07) 3708 8762 Fax: (07) 3708 8860

Queensland Government

Issued: 7 Aug 2023	Laboratory Report: Final Report	Ver: V1	Job: P23-03057

Date collected:	28 Jul 2023	Job number:	P23-03057
Date received:	01 Aug 2023	Job manager:	Anita Gordon
Reason:	Disease Investigation - Terrestrial	Job type:	cattle
BORIS Ref:	SRV-AHS - 3195 (4112)		
To:	[redacted]	PIC:	[redacted]
		Owner:	
		Property:	
		Local Govt:	
		Address:	

Diagnosis

lab ref	topography	morphology	aetiology	diagnosis
job				No diagnosis

Diagnostic comment

See extension notes at end of report for serology interpretation. Results tend to rule out most of the agents tested as causes of reproductive losses. Note that sampling more than 7 additional empty cows for the Campylobacter fetus subsp. venerealis ELISA would incur fees.

Test Results

Analysis:	**Bovine viral diarrhoea virus antibody detection by the agar-gel immunodiffusion test**
Location:	Biosecurity Sciences Laboratory - Coopers Plains (13389)
Discipline:	Serology Status: New results - test completed

13 Tested 13 negative

lab ref	specimen	analysis component	result
1	blood (clotted)	titre	0
	blood (clotted)	interpretation	negative
2	blood (clotted)	titre	0
	blood (clotted)	interpretation	negative
3	blood (clotted)	titre	0
	blood (clotted)	interpretation	negative
4	blood (clotted)	titre	0
	blood (clotted)	interpretation	negative
5	blood (clotted)	titre	0
	blood (clotted)	interpretation	negative
6	blood (clotted)	titre	0
	blood (clotted)	interpretation	negative
7	blood (clotted)	titre	0
	blood (clotted)	interpretation	negative
8	blood (clotted)	titre	0
	blood (clotted)	interpretation	negative
9	blood (clotted)	titre	0
	blood (clotted)	interpretation	negative
10	blood (clotted)	titre	0

NATA
World Recognised Accreditation.
Biosecurity Queensland Veterinary Laboratories: 13389
Accredited for compliance with ISO/IEC 17025 – Testing

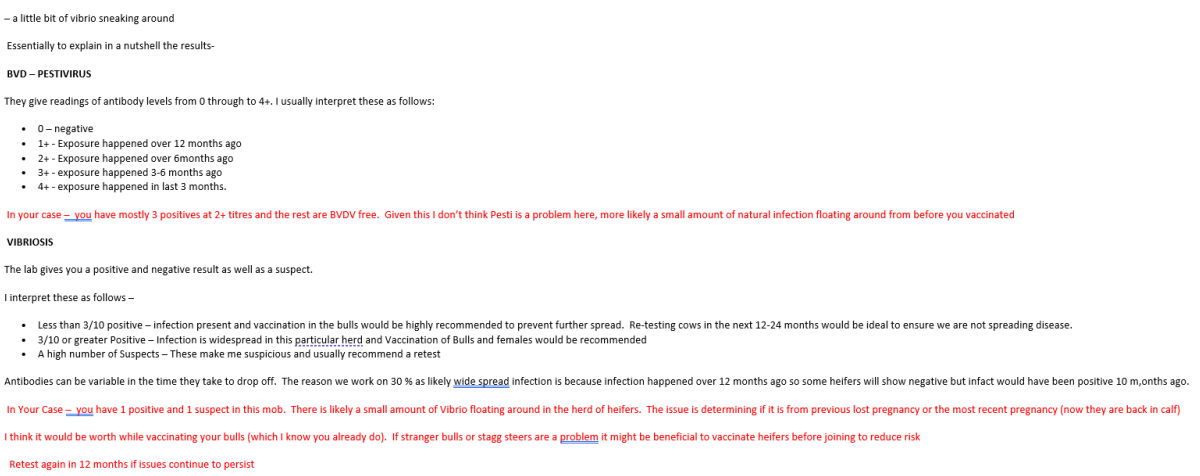
Page 1 of 5
Distribution via email : daniel.burton@daf.qld.gov.au

Notes on serological testing of infertility in cattle:
Serological investigation of infertility should be conducted as close to the time of foetal loss as possible.

Interpretation of Pestivirus AGID: Cattle infected with BVDV produce antibodies that are detectable in the AGID from 12-14 days after contact with the virus. The strength of the AGID reaction to BVDV reaches a peak at about 2-3 months after infection and slowly declines. Some animals will be very weak (1+) reactors after 12 months, while in others, moderate to weak (1-2+) antibody reactions may persist for years. The strength of the AGID reaction in the early period after infection is of diagnostic value to assess whether animals have been recently infected. This is especially useful for the investigation of reproductive disease when groups of affected animals are sampled. If there are only seronegative animals, or almost all are weak +ves (predominantly 1+ and some 2+ reactors), it is highly unlikely that BVDV is associated with the problem. However the presence of a number of 3+ reactors (or stronger) will usually suggest that there has been transmission of BVDV within the group within the last 6 months (approximately). Animals with no detectable antibodies to BVDV may either be unexposed or 'persistently infected'. Their status may be resolved by conducting the Ag-capture ELISA.

Interpretation of Campylobacter ELISA: Based on the results of 10 animals sampled, bovine venereal campylobacteriosis (BVC) is unlikely to be present in the herd if all samples are negative. Finding 1-2 positives is consistent with BVC. The disease in this case may not be widespread in the herd. Finding 3 or more reactors indicates widespread infection in the herd. Some caution is needed in attributing significance to a high prevalence of seropositivity (>30%) to BVC, as there is evidence that titres can persist for many months and may carry over from one breeding season to the next. In endemically infected herds it could represent infections that have occurred during the current mating period or during previous mating period(s), with the latter cows likely to be immune and thus unaffected by the current exposure. In this case, the degree of infertility will largely depend on the proportion of susceptible cows or replacement

Figure 24. Veterinarians interpretation of Laboratory Report to PDs producer 2024.



– a little bit of vibrio sneaking around

Essentially to explain in a nutshell the results-

BVD – PESTIVIRUS

They give readings of antibody levels from 0 through to 4+. I usually interpret these as follows:

- 0 – negative
- 1+ - Exposure happened over 12 months ago
- 2+ - Exposure happened over 6months ago
- 3+ - exposure happened 3-6 months ago
- 4+ - exposure happened in last 3 months.

In your case – you have mostly 3 positives at 2+ titres and the rest are BVDV free. Given this I don't think Pesti is a problem here, more likely a small amount of natural infection floating around from before you vaccinated

VIBRIOSIS

The lab gives you a positive and negative result as well as a suspect.

I interpret these as follows –

- Less than 3/10 positive – infection present and vaccination in the bulls would be highly recommended to prevent further spread. Re-testing cows in the next 12-24 months would be ideal to ensure we are not spreading disease.
- 3/10 or greater Positive – Infection is widespread in this particular herd and Vaccination of Bulls and females would be recommended
- A high number of Suspects – These make me suspicious and usually recommend a retest

Antibodies can be variable in the time they take to drop off. The reason we work on 30 % as likely wide spread infection is because infection happened over 12 months ago so some heifers will show negative but infact would have been positive 10 m,onths ago.

In Your Case – you have 1 positive and 1 suspect in this mob. There is likely a small amount of Vibrio floating around in the herd of heifers. The issue is determining if it is from previous lost pregnancy or the most recent pregnancy (now they are back in calf)

I think it would be worth while vaccinating your bulls (which I know you already do). If stranger bulls or stagg steers are a problem it might be beneficial to vaccinate heifers before joining to reduce risk

Retest again in 12 months if issues continue to persist

Another reproductive disease that is gaining traction in the region is Bovine Trichomoniasis (Trich).

Although not reported during the project by any of the core participants as a known concern, a small number of observers at field days reported their experience with Trich.

The observers reported they identified they had negative trends in pregnancy (early pregnancy loss) and also resultant reduced brandings from what pregnancies (late term abortions) they did record. Initial investigations focused on the "normal candidates" of Vibriosis and Pestivirus resulted in little if any infections. A conversation with another near neighbour encouraged a close inspection of the bulls that included swabs of genitals. The result was a very high number of herd bulls infected and subsequently culled at considerable cost for replacements.

4.1.10 Dystocia and calf loss.

Although dystocia deaths and calf losses were suspected to be concerns, producers monitored their project heifers (then cows) during water and lick runs. Paddock counts conducted during these movements were utilized to observe potential heifer mortalities. However, due to the limited number of heifer and calf carcasses observed, it is challenging to accurately determine the severity of these deaths. Again, the project's 'better seasons' probably ameliorated these.

4.2 Economic analysis

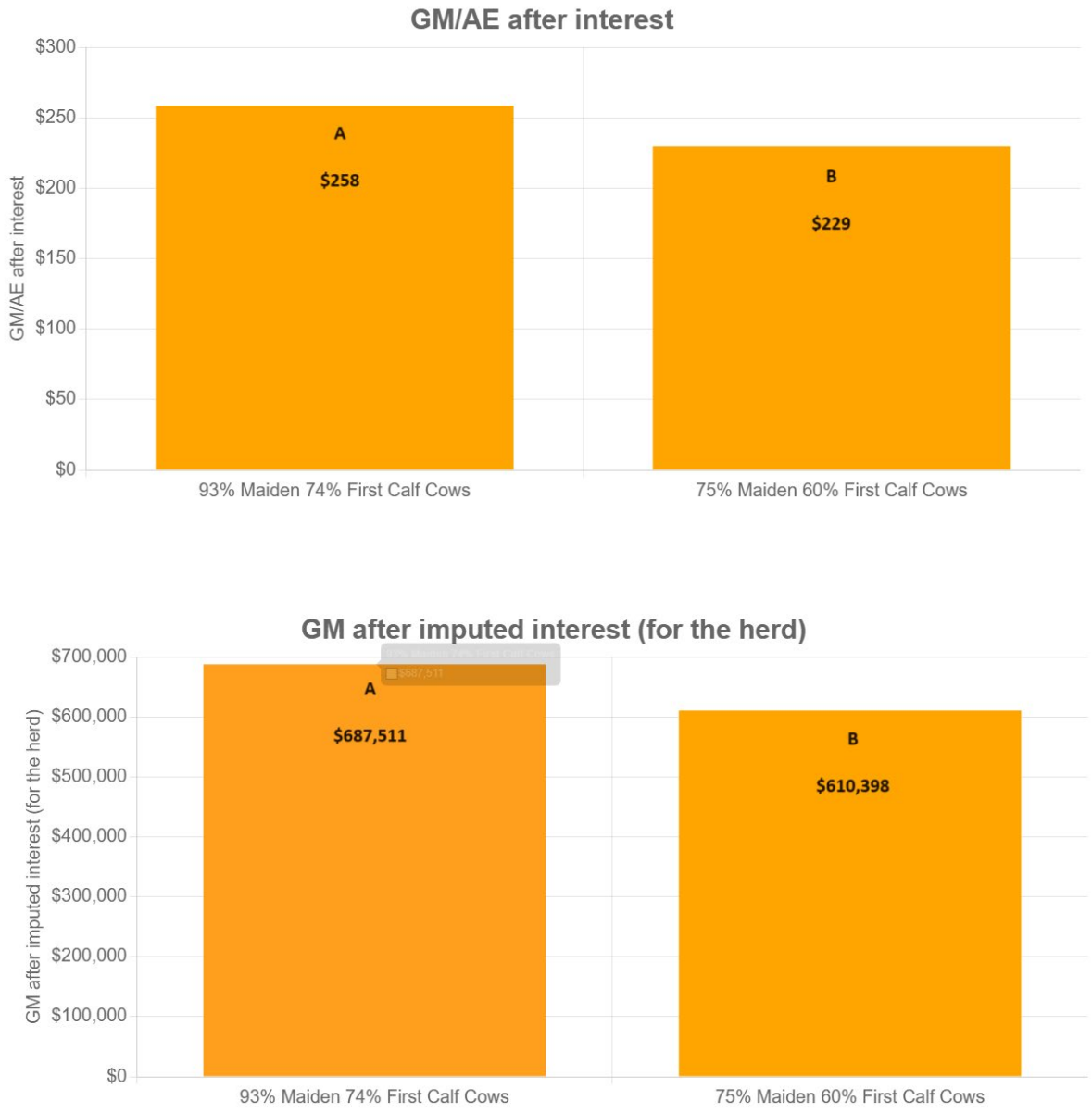
BreedCow & Dynama: Herd Budgeting Software Package was suggested as a useful alternative to Cost of Production to provide an insight to the financial sensitivity of a starting number of weaner heifers retained with varying conception rates applied. Assistance was sort from Queensland Department of Agriculture and Fisheries economists in the application of BreedCow.

Two real life scenarios were run on the model:

- 75% maiden conceptions and 60% first calf cow re-conceptions.
- 93% maiden heifer and 74% first calf cow re-conceptions.

These two scenarios are representative examples of outcomes in the Desert Uplands experienced by a PDS property breeding enterprise of 2660 total Adult Equivalents involved in the project.

Figure 25. Gross Margin/Adult Equivalent GM/AE



Commentary below is provided by Timothy Harrison, Manager, Agribusiness Development, Rural Economic Development, Agriculture, Department of Agriculture and Fisheries.

- A simply gross margin analysis was conducted through BreedCow Dynama.
- The analysis focused on the outcomes of the trial regarding conception and weaning rates on heifers and first-calf heifers but conducted a whole of herd analysis so that limitations at the property level (such as stocking rate) could be considered.
- The cost of achieving the performance increase was not considered. The advantage of this is that it can guide investment decisions through understanding break even.
- In this case, the benefit of improving reproduction to the specified levels were ~$30.00/AE, or across a 2660AE herd, an $80,000 improvement. The economics is sensitive to current weaning rate and expected weaning rate improvement.
- This economic analysis using trial data showed that at the level of improvement experienced it is well worth producers investigating how they improve reproduction performance.

- There are many ways to improve reproduction performance, including production feeding, lower stocking rate, long term genetic improvements through cow cull strategies and bull selection.
- Due to all these factors, it is important that producers conduct an analysis for their own situation (BreedCow is one such tool that can do this).

Numerous conversations with experienced agricultural advisors pointed to agreeance that increasing conceptions and weanings will enhance productivity and profitability up to a point, after which it is a case of diminishing returns.

The BreedCow presentation showed the increase in saleable surplus females was the most apparent beneficial financial outcome flowing from the ability to capitalise from the improved heifer reproductive performance, in the 94% maiden and 74% first calf cow conception scenario. (Summary details of the scenarios can be found in the Appendices 7.1)

The levels of maiden heifer (94%) and first calf cow (75%) conceptions achieved during the project by the PDS property are exceptional. These results reflect the implementation of BMP principles promoted by the Girl Power project in the management of the heifer cohorts so that they have been able to exploit the opportunities of the seasonal conditions. Extra investment in heifer management chasing higher conceptions levels is questionable.

This outcome provides an affirmative response to a question posed by Dr Geoff Niethe.

"*Has this PDS addressed the need to better manage young breeders and empowered producers with the correct process to identify issues when and how they arise?" …..*

Investment into managing the risk of seasonal variability and calf loss by continuing to confront the issues that impact heifer performance is likely to be rewarded in the above case.

4.3 Extension and communication

The communication and extension plans were implemented as intended, with the following activities undertaken:

- Two major workshops were conducted. A pre-project Breeder Management Day and Heifer Management Best Practices targeting PDS, core and attending observer producers.
- Three major field days were held at PDS sites and covered varying topics. These days often incorporated other aligned project topics and representations. This strategy of diversification encouraged better producer attendance and participation, some of these were held in conjunction with other organisations to ensure we could get producer attendance. The commonality of messages across these aligned projects and presentations is a valuable reinforcement of key messages and a demonstration of integration of these collective principles working together within a breeder enterprise on-property (furthering adoption and adaption).
- Two other field days were held covering heifer ascension and links to grazing management and alignment of practices to assist them. These days covered cattle production in a more holistic manner with a reginal ecological focus.
- The Girl Power Project were the key presentations and theme for the BeefUp Forum held in Blackall in September 2022. Post Covid, it was well attended and created a lot of interest in the project, with articles in the Queensland Country Life, Longreach Leader and Barcoo Independent.

- During the latter part of the project, a series of Zoom meeting featuring invited guest presenters on topics directly focused on the project's objectives were incorporated to maintain producer engagement and to cover evolving issues and 'gaps'. These Webinars helped to keep producers attention on their heifer management activities and practices whilst also providing opportunities to enhance knowledge and network opportunities. Speakers' presentations incorporated:
    - The search for Fertility on property in NW Qld,
    - Bull Selection and Adaption in Northern Australia,
    - Insights into and key learnings to date from the Calf Alive Project,
    - 'Breeder Malnutrition' in the Rangelands, and
    - The Importance of Data Collection across all aspects of breeder and grazing management and the enterprise.
- Heifer Management Best Practice Manual (The Pink Book) with data collection sheets was developed and distributed (to the core producers and others who were interested). Parts of this book were also reproduced and given out/emailed to producers and attendees at various information sessions that talked about the project.
- Articles were published in the Queensland Country Life (4) and the Barcoo Independent (3)
- Two case studies were written up in the Feedback Magazine, Autumn 2024. This led to good attendance at the last field day and phone inquiries.
- An article on final results is scheduled for the MLA Feedback magazine in early 2025.
- A video is also being developed with footage of two of the major sites and communicating the final results from the project. This will be completed after the final report and will link to the next MATERIX Project
- Presentations at the two days of the Westech Field Days in September 2021, with all participating producers engaged through visiting a site shared with QDAF and large format presentations of key aspects of project.
- Aspects of the Girl Power Project have been presented at other field days, information sessions and producer meetings over the three and a half years, including:
    - Westech Field Days in September 2023
    - Three Grazing Futures collaboration meetings
    - Three WQ NABRC meetings (2 members also attended the last field day, effectively looping back on the project they supported in 2018 and providing valuable feedback, to both attendees and key project personnel)
    - Regular Updates to attendees (and the 20-member committee through subsequent minutes) at the tri-monthly committee meetings of the Desert Uplands Committee
- A good indicator of the value of key aspects of this project, and that these were communicated well & widely early on, is that a group of regional sheep producers have essentially copied this project and are now examining key aspects of young ewe performance in their enterprises. Further, feedback from this will help inform the follow-on PDS MATERIX Project.

Table 12 captures the communication and extension activities as per the original plan including the estimated engagement/reach.

Table 12: Extension and Communication activities.

Activity	Responsibility	Target Audience	Key messages and must-have elements	Timing	Estimated reach	NOTES & LINKS
MEDIA & COMMUNTIY BREIFING NOTE	ROBYN ADAMS	*Primary, Secondary & Tertiary*	One pager (with image) announcing and outlining the project	MARCH 2020	200	APPENDIX 7.3
MEDIA RELEASE	ROBYN ADAMS	*Primary & Secondary*	Focus on project field day / workshop	AUGUST 2020	200	APPENDIX 7.3
HEIFER MANAGEMENT WORKSHOP	ROBYN ADAMS	*Primary*	Focus on Heifer Management Best Practice – science & application in the Desert Uplands Bioregion	SEPTEMBER 2020	30	APPENDIX 7.3
PRODUCER BASELINE DATA & IMAGE SET	ROBYN ADAMS	*Primary & Secondary*	To inform all involved of a base average for the wooded Desert Uplands	SEPTEMBER 2020	40	APPENDIX 7.3
MEDIA RELEASE #2	ROBYN ADAMS	*Primary & Secondary*	Overview article (with image) about Field Day / workshop & first stages	SEPTEMBER 2020	100,000 (QCL READERSHIP ESTIMATE)	APPENDIX 7.3 https://www.queenslandcountrylife.com.au/story/6905698/barcy-set-for-girl-power-heifer-performance-day/
PARTICIPANT PRODUCER CHARTS	ROBYN ADAMS	Primary	Table and charts to communicate project details, activities and time frames to participants and project personnel.	SEPTEMBER 2020	40	APPENDIX 7.1
PROJECT PARTICIPANT MAP	CHRRUP	*Primary*	Comms & logistics tool for project participants & personnel.	OCTOBER 2020	40	APPENDIX 7.1
HEIFER MANAGEMENT MANUAL	GEOFF NEITHE	*Primary & Secondary*	Project Guide developed off MLA foundation publications and research	MARCH 2021	60 Includes hand-outs for rest of project	APPENDIX 7.3
HEIFER MANAGEMENT WORKSHOP #2	ROBYN ADAMS	*Primary & Secondary*	Focus on management practices and critical elements for maiden heifers in the Desert Uplands Bioregion	MARCH 2021	30	APPENDIX 7.3

PARTICIPANT PRODUCER EXTRAS	ROBYN ADMS & GEOFF NEITHE	*Primary*	Extras to engage producers, provide more details, assist with challenges and augment project practice change.	MARCH 2021	20	+ MLA PHOSPHOROUS CHALLENGE INVITE
MLA WEBSITE BRIEF	ROBYNAA DAMS	*Primary, Secondary & Tertiary*	Project brief and aims, with Project Officer contact details	JUNE 2021	??	https://www.mla.com.au/extension-training-and-tools/search-pds/pds-data/girl-power-prioritising-heifer-performance/
MEDIA RELEASE	ROBYN ADAMS	*Primary, Secondary & Tertiary*	One pager (with image) about upcoming Field Days in Barcaldine with project overview	AUGUST 2021	200	APPENDIX 7.3
FIELD DAY	ROBYN ADAMS	*Primary & Secondary*	WESTECH FIELD DAYS – two days of engagement with regional producers	SEPTEMBER 2021	50	APPENDIX 7.3 Includes handouts
MEDIA RELEASE	ROBYN ADAMS	*Primary, Secondary & Tertiary*	Article about above Field Days and key findings of project so far, with focus on one producer.	DECEMBER 2021	2,000	https://www.queenslandcountrylife.com.au/story/7559756/girl-power-the-focus-for-northern-herd-rebuild/
WEBSITE POST/ DIGITAL STORY	ROBYN ADAMS	*Primary, Secondary & Tertiary*	Article with photographs uploaded onto DUC rebooted website	MARCH 2022	2,000	https://www.desertuplands.org.au/girl-power-project/
MEDIA RELEASE & FLYER	ROBYN ADAMS & CHRRUP	*Primary, Secondary & Tertiary*	Article about upcoming Field Days and key presentations of project data and aspects.	MARCH 2022	200	APPENDIX 7.3
TWO ON-PROPERTY FIELD DAYS	CHRRUP	Primary & Secondary	On two participant properties, full days with in-field presentations of key aspects of project; and observations of heifers, cows and calves involved in project	MARCH 2022	60+	APPENDIX 7.3
MEDIA RELEASE	ROBYN ADAMS	*Primary, Secondary & Tertiary*	Article about above two Field Days and key presentations of project data and aspects.	MAY 2022	200	APPENDIX 7.3
WORKSHOP	ROBYN ADAMS	Primary & Secondary	Presentations on Girl Power Project at *Desert Daze* event at Lake Dunn	JUNE 2022	30	APPENDIX 7.3

MEDIA RELEASE	ROBYN ADAMS	*Primary, Secondary & Tertiary*	One pager (with image) about upcoming BeefUp Forum at Blackall Saleyards	AUGUST 2022	200	APPENDIX 7.3
PARTICIPANT BREIFING NOTE	ROBYN ADAMS	*Primary*	One pager to inform about and invite to the BeefUp Forum	AUGUST 2022	20	APPENDIX 7.3
BEEFUP FORUM	ROBYN ADAMS	*Primary & Secondary*	Successful post-covid forum focussing on key aspects of heifer management in western Queensland.	SEPTEMBER 2022	50	APPENDIX 7.3
MEDIA RELEASE	ROBYN ADAMS	*Primary, Secondary & Tertiary*	BeefUp Forum report & information	OCTOBER 2022	2,000	APPENDIX 7.3 https://www.queenslandcountrylife.com.au/story/7936363/beefup-forum-beefs-up-blackall/
MLA WEBSITE	MLA	*Primary & Secondary*	Aims, objectives & update on GPP PDS	NOVEMBER 2023	??	https://www.mla.com.au/extension-training-and-tools/pds-producer-demonstration-sites/producer-demonstration-news/girl-power-prioritising-heifer-performance/
ZOOM SESSION	ED WOOD	*Primary*	Guest presenter James Lord covered his learnings, understanding and knowledge of a holistic approach to successful breeder management, and his 'less is more' reflections.	MARCH 2023	10	APPENDIX 7.3
FIELD DAY	ROBYN ADAMS	*Primary*	Held on a participant's property, a combined projects Field Day bringing together the young and old females in the paddock with key grazing management aspects	MARCH 2023	15	APPENDIX 7.3
MEDIA RELEASE & PROGRAM	ROBYN ADAMS	*Primary & Secondary*	Bi-fold two pager explain projects including the GPP	MAY 2023	15	APPENDIX 7.3
FIELD DAYS	ROBYN ADAMS	*Primary & Secondary*	Alejandro Carrillo, a Mexican regenerative rancher presented on the two days, linking female management with intensive grazing routine.	SEPTEMBER 2023	70	

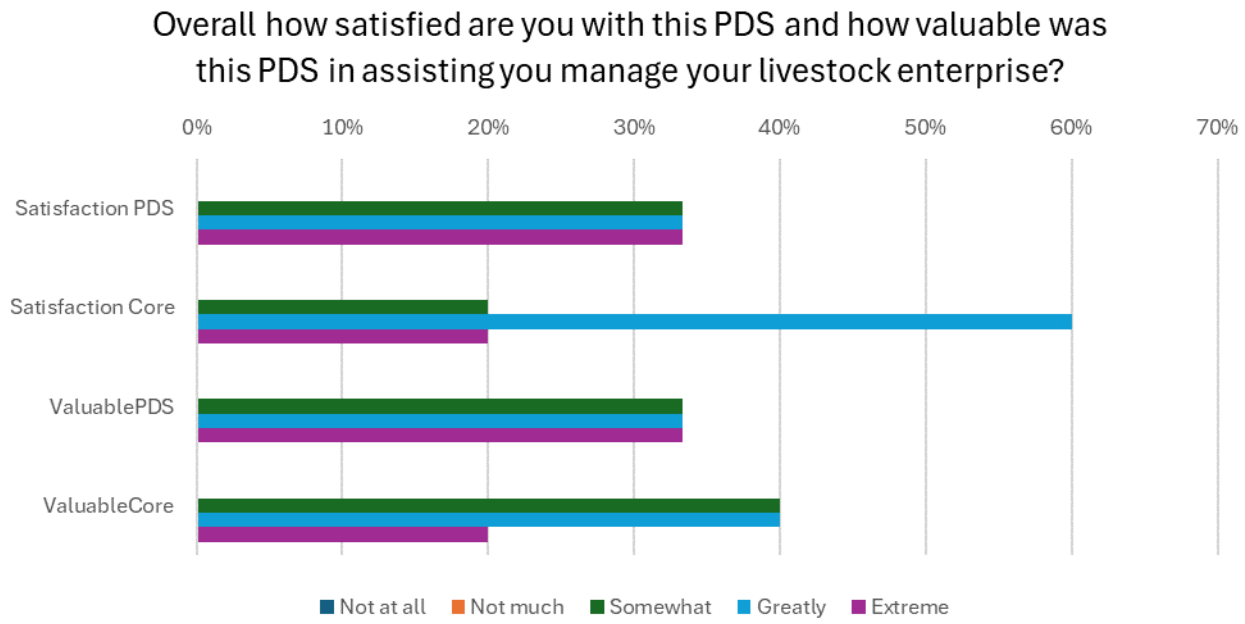
ZOOM	ED WOOD &	*Primary*	Guest presenter. Michael Flynn. Valera Vale Droughtmasters. Bulls. Our Environment, our Business.	July 2023	9	APPENDIX 7.3
ZOOM	ED WOOD	*Primary*	Guest presenter: Associate Professor Dr Luis Prada e Silva - Impacts of Breeder Mal-nutrition..	August 2023	10	APPENDIX 7.3
ZOOM	ED WOOD	*Primary*	Ian McLean_Bush Agribusiness. "What data is Important in a Beef Breeding operation? "What can do with it?"	October 2023	10	APPENDIX 7.3
MLA FEEDBACK MAGAZINE	MLA	*Primary & Secondary*	Four pages on two case studies of the lead participating and a core producer, detailing heifer	MARCH 2024	4,400	APPENDIX 7.3 Feedback magazine | Meat & Livestock Australia
HEIFER MANAGEMENT FIELD DAY	ROBYN ADAMS	*Primary & Secondary*	Focus on project results & challenges, longer term adoption & routines, plus aligning class of cattle with land condition/which paddock.	APRIL 2024	40	APPENDIX 7.3
MEDIA RELEASE	ROBYN ADAMS	*Primary, Secondary & Tertiary*	Report on project and field day in the Queensland Country Life, Longreach Leader and Barcoo Independent.	APRIL 2024	2,000	https://www.queenslandcountrylife.com.au/story/8602174/livestock-production-study-girl-power-results/
WESTERN QUEENSLAND BEEF RESEARCH COMMITTEE MEETING	ED WOOD	*Primary, Secondary*	Project progress report.	May 2024	12	
MLA WEBSITE	MLA	*Primary & Secondary*	PDS POWERS HEIFER CONCEPTION – Case study	JUNE 2024	752 views, average 1m17secs	PDS powers heifer conception | Meat & Livestock Australia
MEDIA RELEASE	ROBYN ADAMS	*Primary, Secondary & Tertiary*	In depth article about project results after reports written	AUGUST 2024	N/A	

4.4 Monitoring and evaluation

This section of the report delves into the pre and post-project survey responses and field day evaluations. The findings reveal a range of improvements in heifer management knowledge, from marked to minimal, as depicted in the survey results. Additionally, producers have implemented several key changes as a result of the project. These include upgrading early weaning infrastructure, investigating ways to add protein and energy to supplement routines, and moving calving dates from November to September. Producers also emphasized the importance of tracking individual cattle, vaccinating heifers for Pestivirus and bulls for Vibrio, and using preg testing to inform forage budgets. These changes reflect a proactive approach to improving heifer management and overall herd health.

4.4.1 PDS and core producer post project surveys

Figure 26. PDS and Core post project producer evaluations on their satisfaction with the PDS



Key points captured from the post project surveys included:

- Knowledge of heifer management improved markedly to not at all as depicted in the survey results.
- Two of the PDS property producers considered that overall, the PDS project increased their knowledge and skills in heifer management greatly and one indicated somewhat but significantly supported their confidence in their current practices.
- Within the Core group, producers ratings ranged from 'not much' to 'extreme' increases in skills and knowledge.
- The confidence in managing heifers however was enhanced as the extension events provided support to many producers about their current practices or highlighted areas that required attention.

Figure 27. PDS and Core post project producer evaluations on how well the project increased knowledge and skills in heifer management.

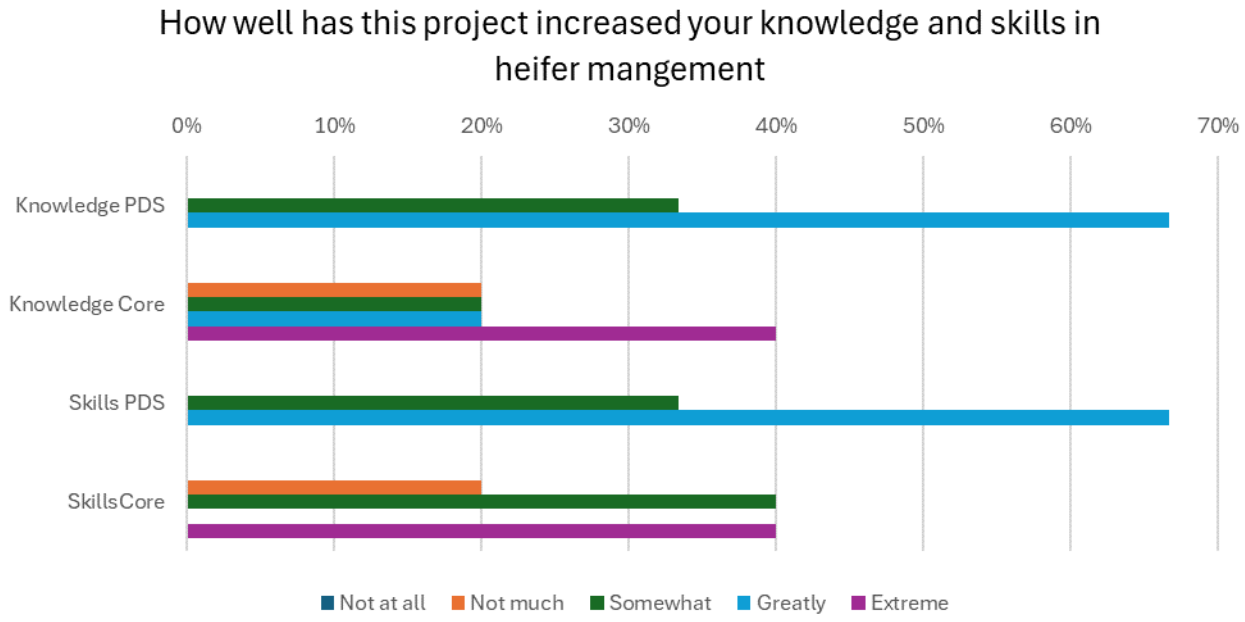


Figure 28. PDS and Core pre and post project producer surveys on what is the most important aspect in determining when to wean calves.

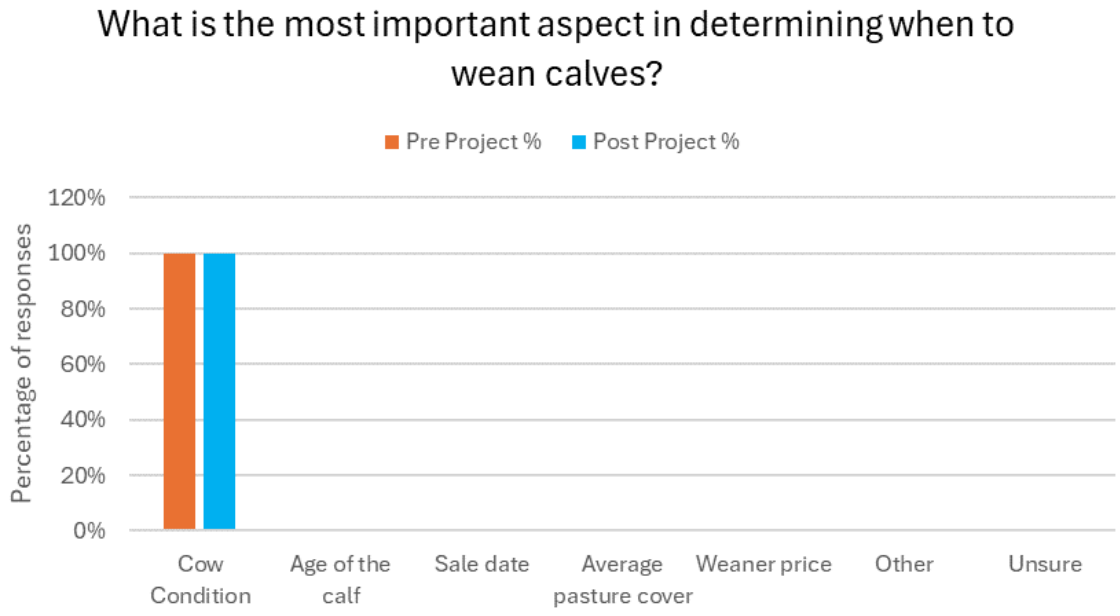


Figure 29. PDS and Core pre and post project producer surveys on what makes supplements the most cost effective.

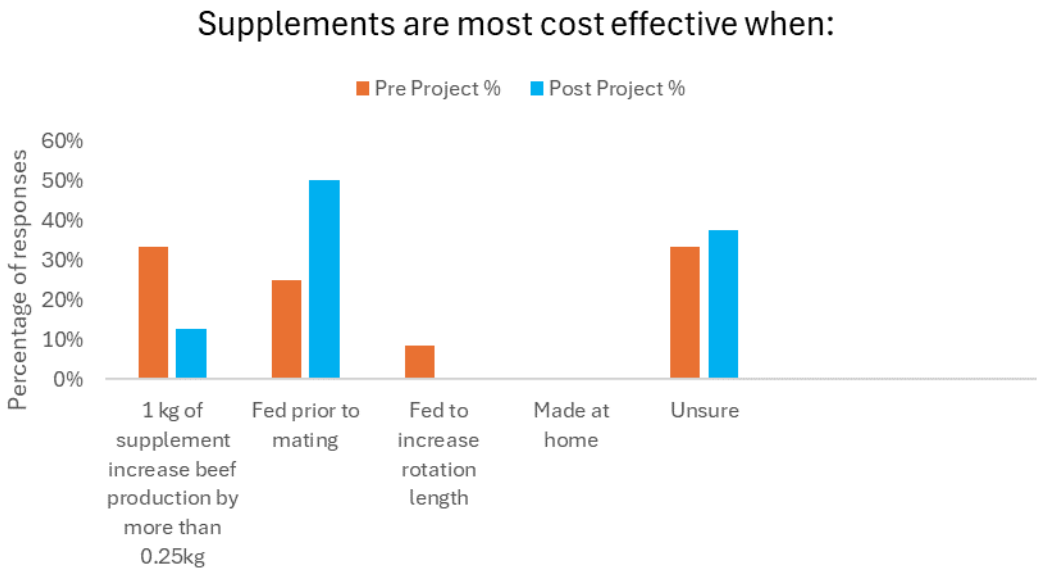


Figure 30. PDS and Core pre and post project producer surveys on how to determine when a heifer is ready to join.

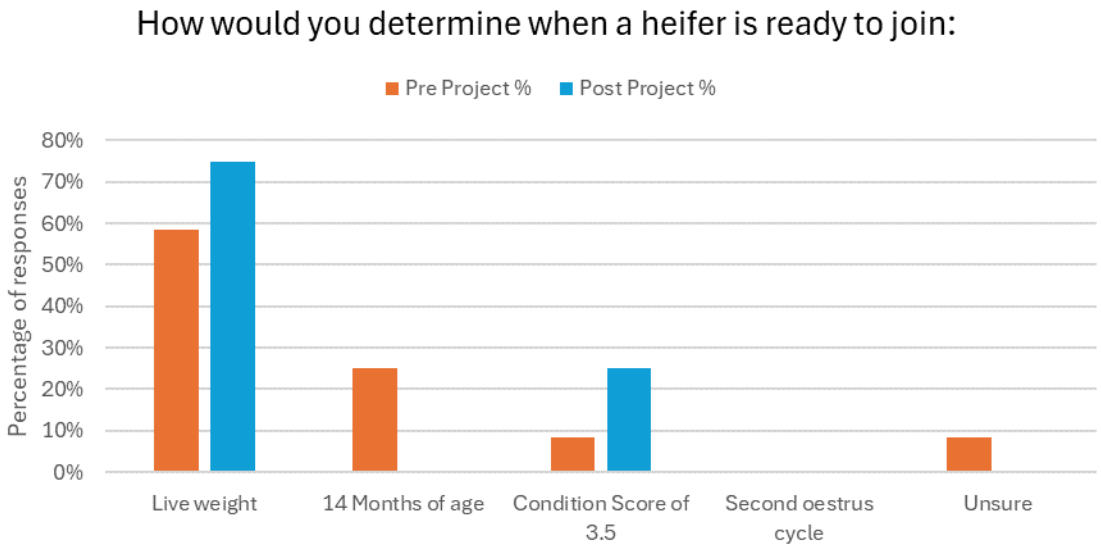


Figure 31. Post project surveys on adoption of heifer management practices

As a result of participating in this PDS have you adopted any of the following practices relevant to Heifer Management:

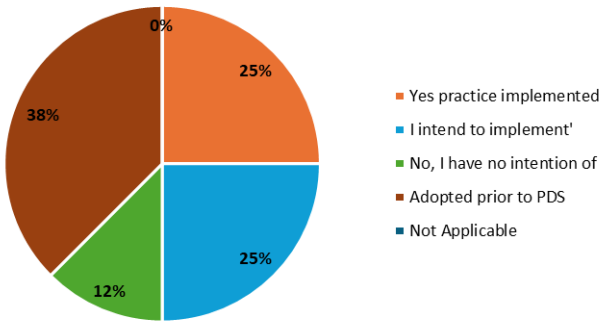
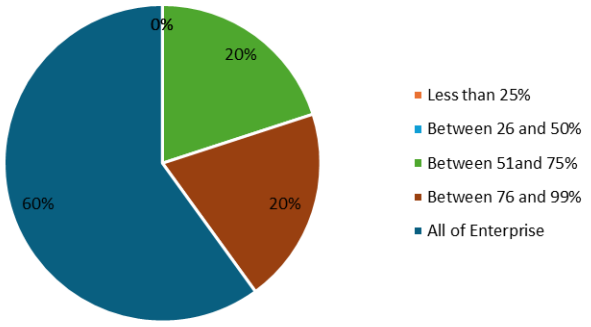
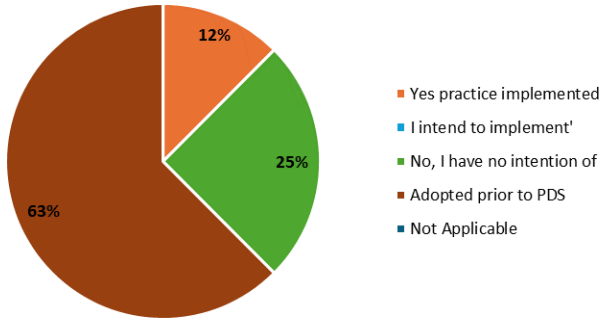
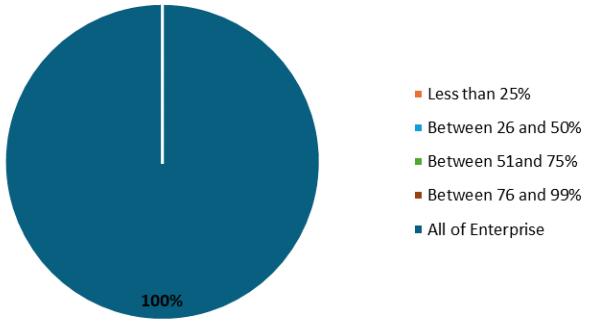
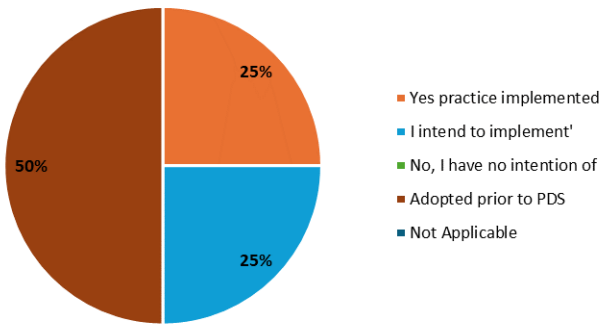
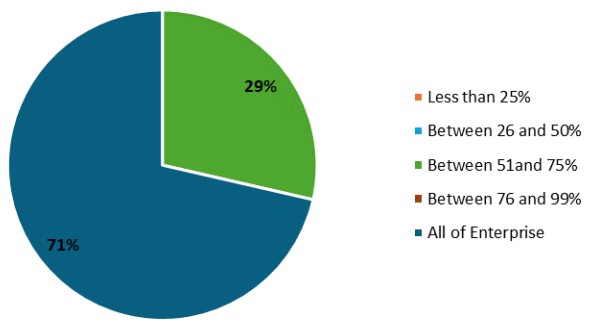
Adoption of Practice	On what % of your enterprise has this practice been adopted?
Weighing heifers prior to joining	
	
For those who have adopted: 67% consider it normal practice, 33% use it sometimes, 0% use it rarely	
Segregate maiden heifers and first calf cows from adult breeder herd	
	
For those who have adopted: 100% consider it normal practice.	
Foetal age/pregnancy test females annually	
	
For those who have adopted: 86% consider it normal practice, 14% use it sometimes, 0% use it rarely	

Figure 32. Post project surveys on adoption of heifer management body condition practices and phosphorous supplementation.

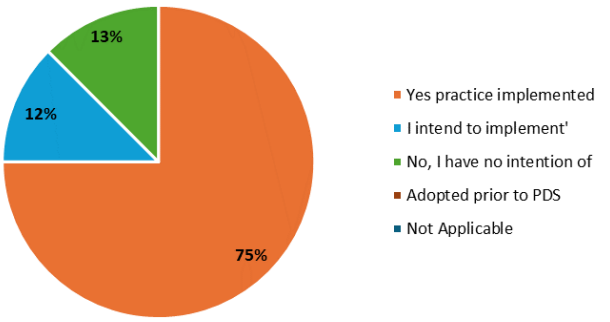
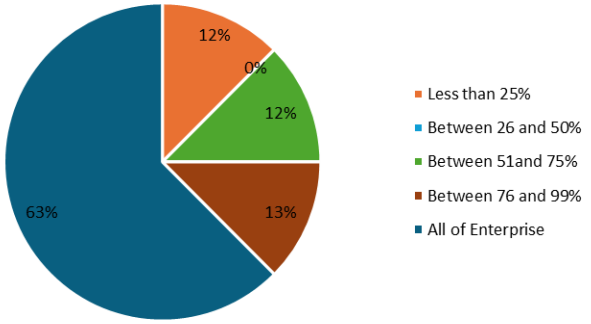
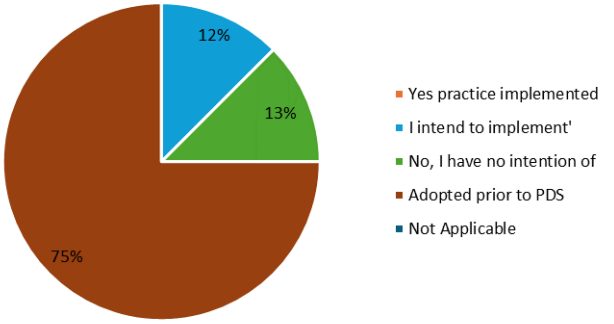
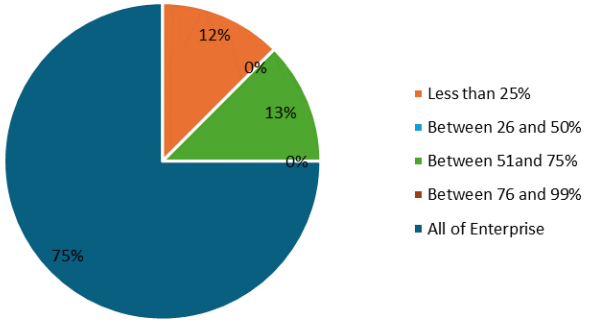
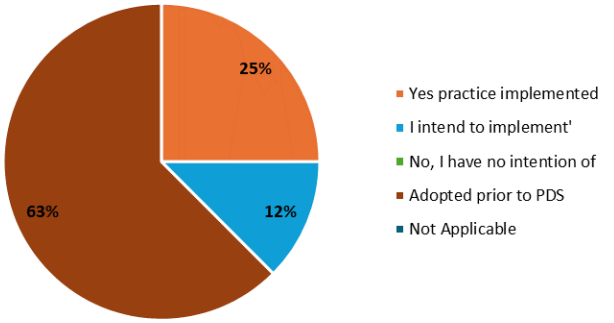
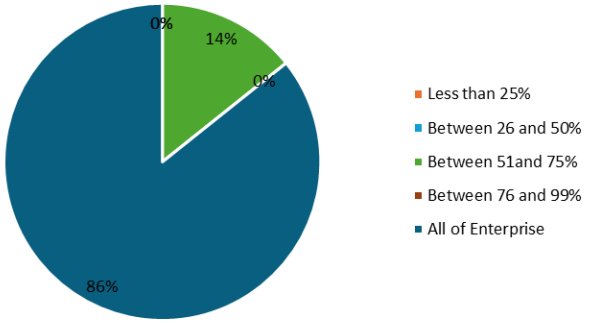
Adoption of Practice	On what % of your enterprise has this practice been adopted?
Assess heifer body condition at calving	
	
For those who have adopted: 63% consider it normal practice, 25% use it sometimes,13% use it rarely	
Early weaning due to heifers losing body condition	
	
For those who have adopted: 74% consider it normal practice, 13% use it sometimes, 13% use it rarely	
Provide phosphorous supplements to heifers	
	
For those who have adopted: 86% consider it normal practice, 14% use it sometimes, 0% use it rarely	

Figure 33. Post project surveys on adoption of heifer management practices including testing and vaccinating reproductive diseases, forage budgeting and control mating

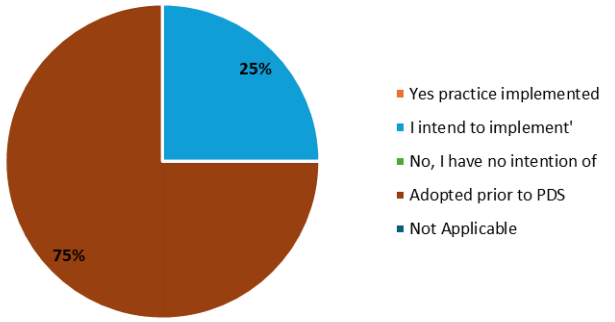
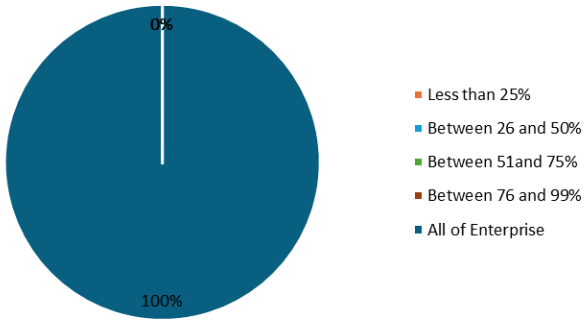
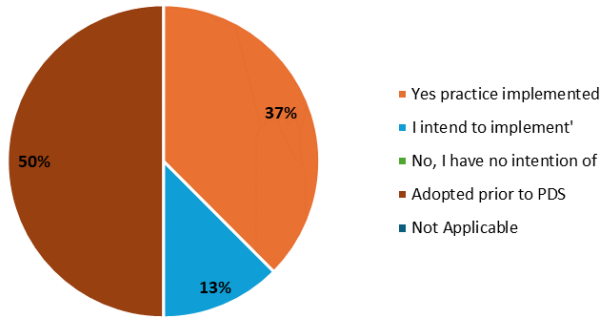
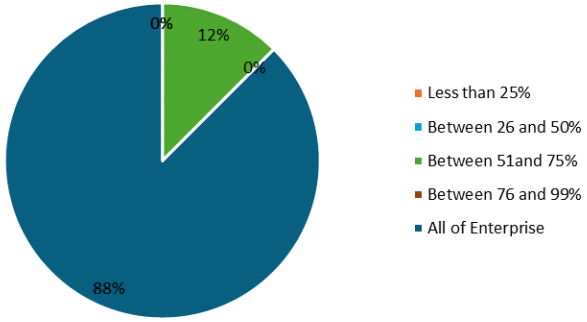
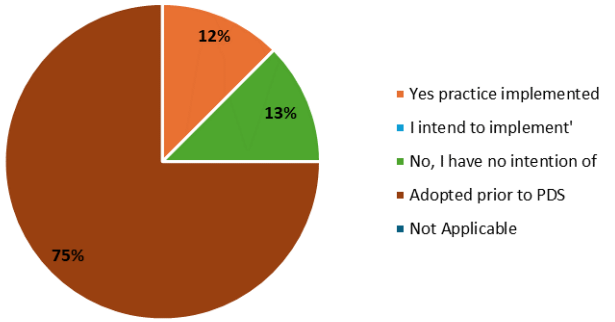
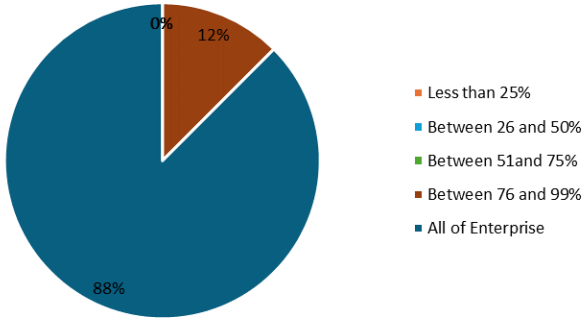
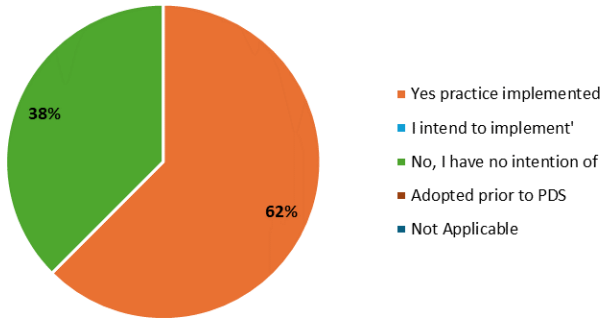
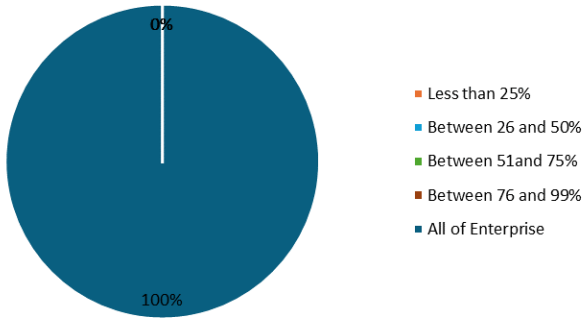
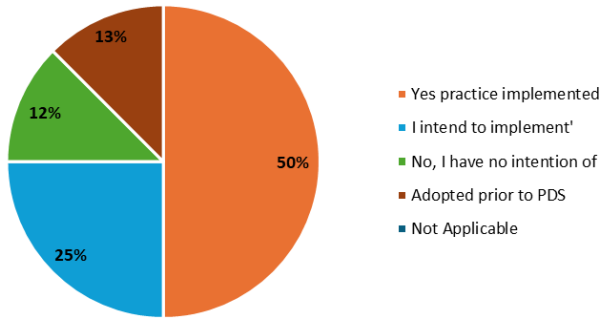
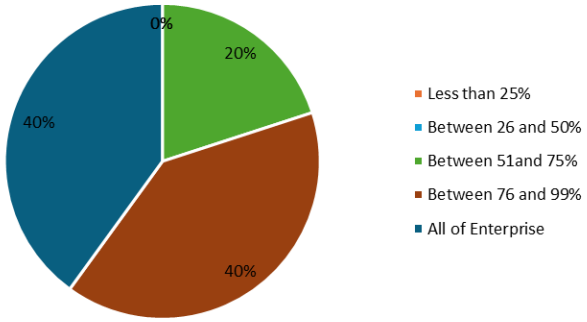
Adoption of Practice	On what % of your enterprise has this practice been adopted?
Test and vaccinate for reproductive diseases	
	
For those who have adopted: 100% consider it normal practice.	
Forage budget and assess land condition at end of wet season	
	
For those who have adopted: 75% consider it normal practice, 25X% use it sometimes, 0% use it rarely	
Control mating	
	
For those who have adopted: 88% consider it normal practice, 0% use it sometimes, 13% use it rarely	

Figure 34. Post project surveys on adoption of heifer management practices including overmating heifers & purchasing bulls

Adoption of Practice	On what % of your enterprise has this practice been adopted?
Overmate heifers	
	
For those who have adopted: 100% consider it normal practice.	
Purchase bulls with a Bull Breeding Soundness Examination	
	
For those who have adopted: 67% consider it normal practice, 17% use it sometimes, 17% use it rarely	

Captured feedback from the surveys included the following producer responses:

What impact did implementing the above practices have on maiden heifer conception rates?

- These have been good through out the project above 85%.
- I cant be sure but I think higher weights in better season helped us with better conception rates
- Made us aware of calf loss.
- Secured the likely hood of rates above 85%.
- These cows need to be looked after extra well to set them up for the future.
- Certainly helped to retain acceptable rebreed rates.

1st calf cow re-conception rates:

- Improved but needs more attention

Maiden heifer weaning percentages:

- Improved. Needs more investigation in case of loss.
- Got problems.
- Loss within acceptable limits because we know preg rates now.

1st calf cow weaning percentages:

- Improved, still room for more
- Rates lifted from 1less than 30% to 60%.
- We don't think we have a problem between branding and weaning. Better yard records would help.

Female mortality rate:

- Good season reduced stresses. And more surveillance during project caught issues as they arose.
- Nothing to be concerned about
- Deaths or wanderings. Not sure.
- Very low

Cost of production:

- Needs heaps of work, useful figures and accounts would help.
- GM/AE other that COP is off interest
- How to measure and reduce.
- Black art need to get books in order to work it out

Reflections from a Core producer;

The data collecting was quite wide making it hard to collect data. We have quite an intensive operation however it was still hard to achieve without extra manpower. With producers' extra people should be provided to check that the data is accurate as well. Many producers take the attitude that near enough is good enough.

Have you made or intend to make any other changes to your business as result of participating in the PDS?

- Get some more analysis of finances, and data in relation to cattle kgs/numbers, that does not relate to Tax reporting
- Upgrade early weaning infrastructure
- Investigate ways of adding Protein and energy to supplement routine to benefit young breeders
- Continue to cut up paddocks to provide more rest aiding native pasture composition
- Tracking each individual year of cattle is important but hard to achieve without easy identification eg tags. We saw huge benefit in doing this with us identifying older cow as the problem with calf loss. While preg testing is very important for early selling of cows weaning rate is of equal importance. The question needs to be raised with all producers what is our preg rate and then compare your weaning rate. Many producers are keeping cattle that are in calf then lose their calf. A good setup in the yards would be of huge benefit to track this
- We probably give more attention to our heifers now in conversation and then action.
- Once breeder numbers stabilize we will keep heifers that fall pregnant in first or second cycle
- Have moved calving date from November to September.
- Vaccinating all heifers for Pestivirus and bulls for Vibrio.
- Preg testing is providing good info for 12 months Forage Budget
- Heifers calve out amongst mature cows for security and matron support.

4.4.2 Observer producer surveys from the heifer management and feed budgeting field days, Monklands, Alpha, Bede and Aramac 2022

Figure 35. Observer responses on feed demand

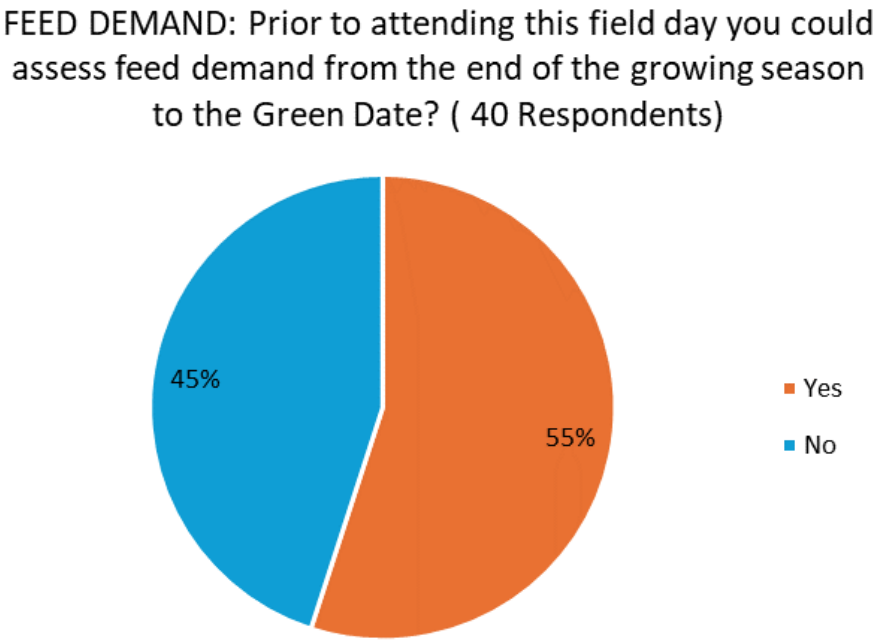

FEED DEMAND: Prior to attending this field day you could assess feed demand from the end of the growing season to the Green Date? (40 Respondents)
45%
55%
Yes
No

Figure 36. Observer responses on feed demand from the end of growing season to the green date

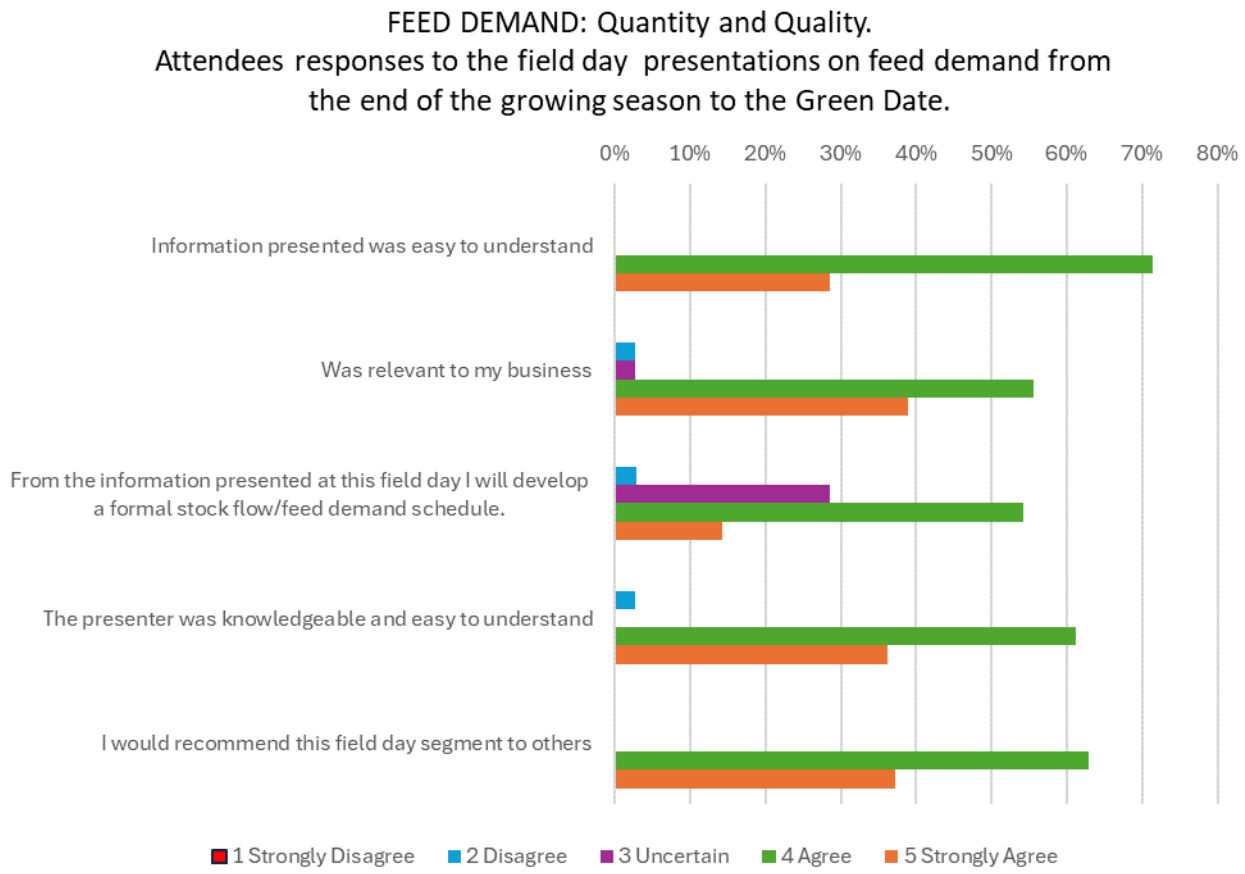


Figure 37. Observer responses on feed supply - assessing land condition and feed supply.

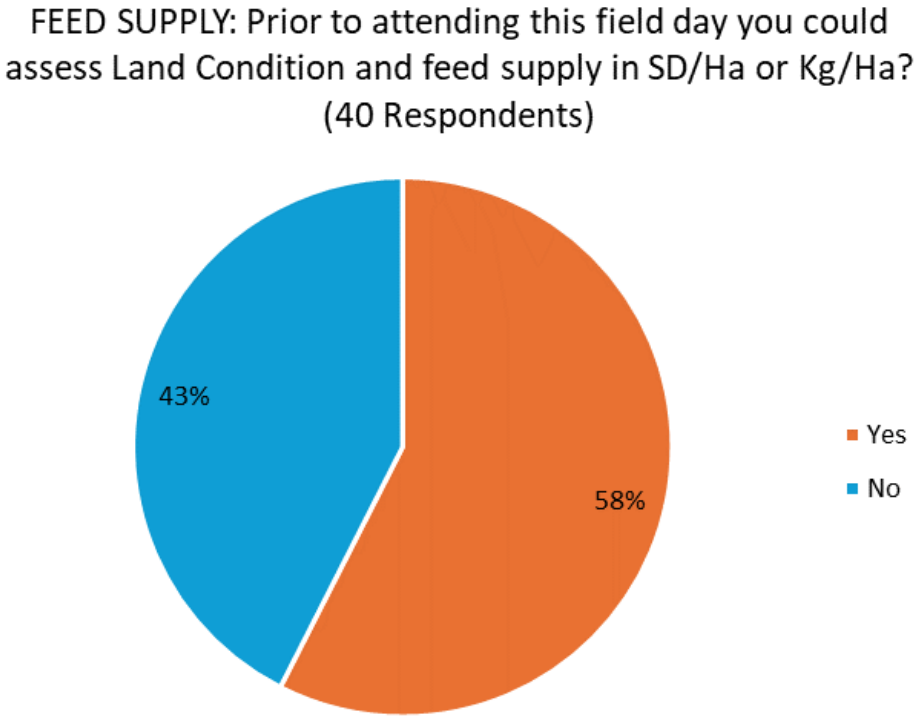


Figure 38. Observer responses on feed demand from the end of growing season to the green date

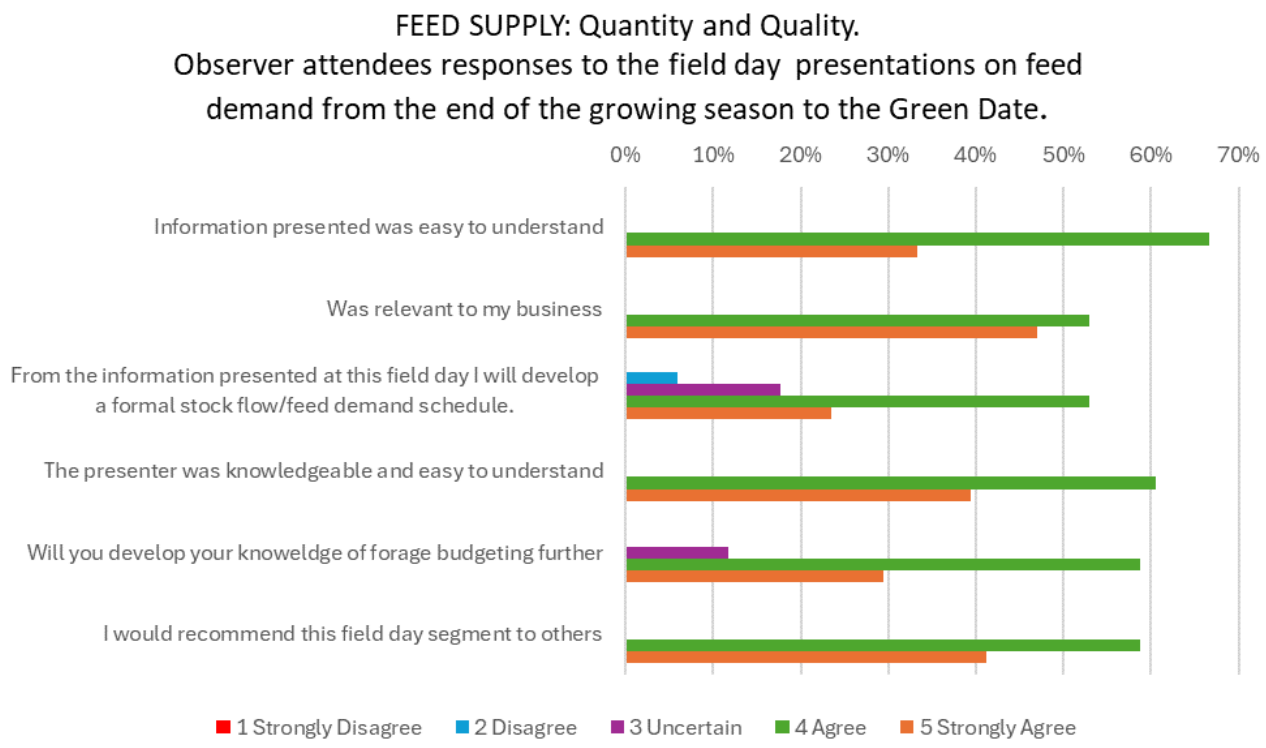


Figure 39. Observer responses to heifer management including body condition and weight.

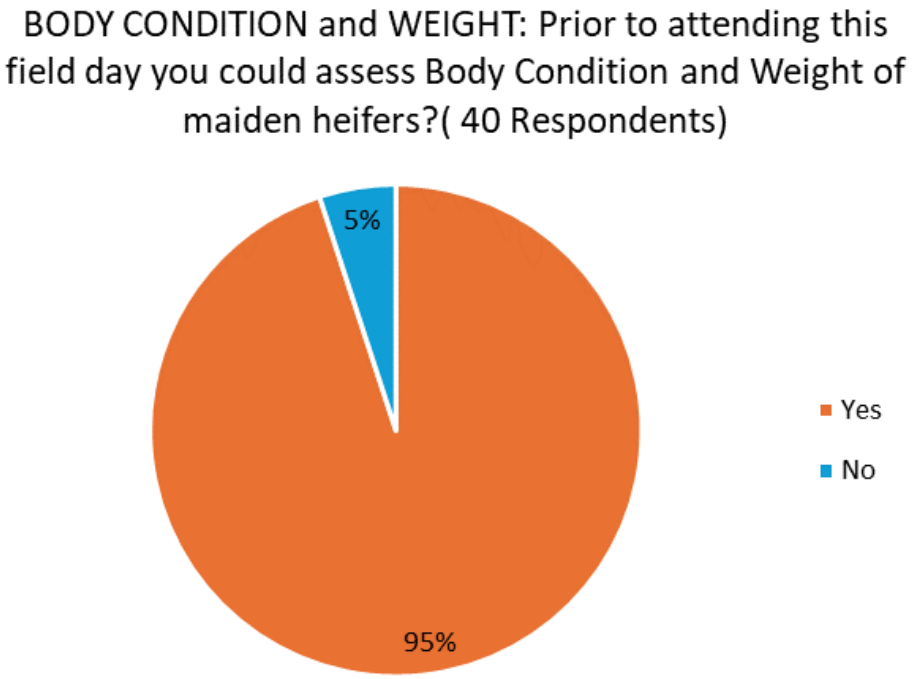


Figure 40. Observer responses to heifer management including body condition and weight.

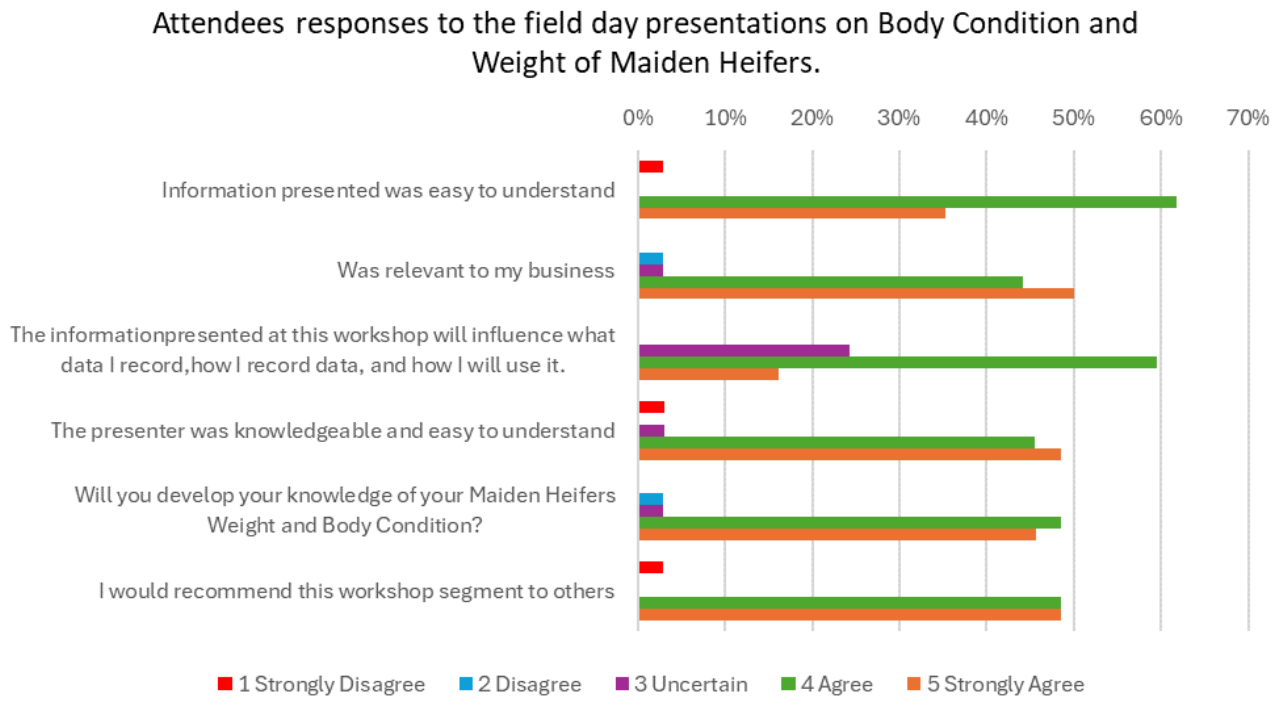


Figure 41. Observer responses to heifer management including having a formal heifer management plan.

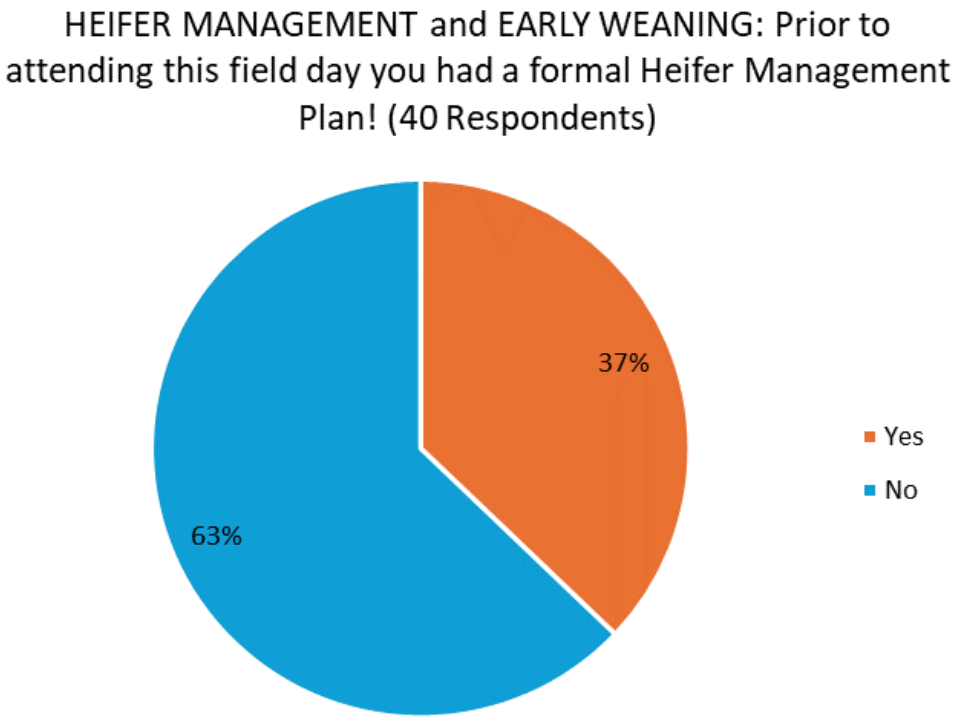
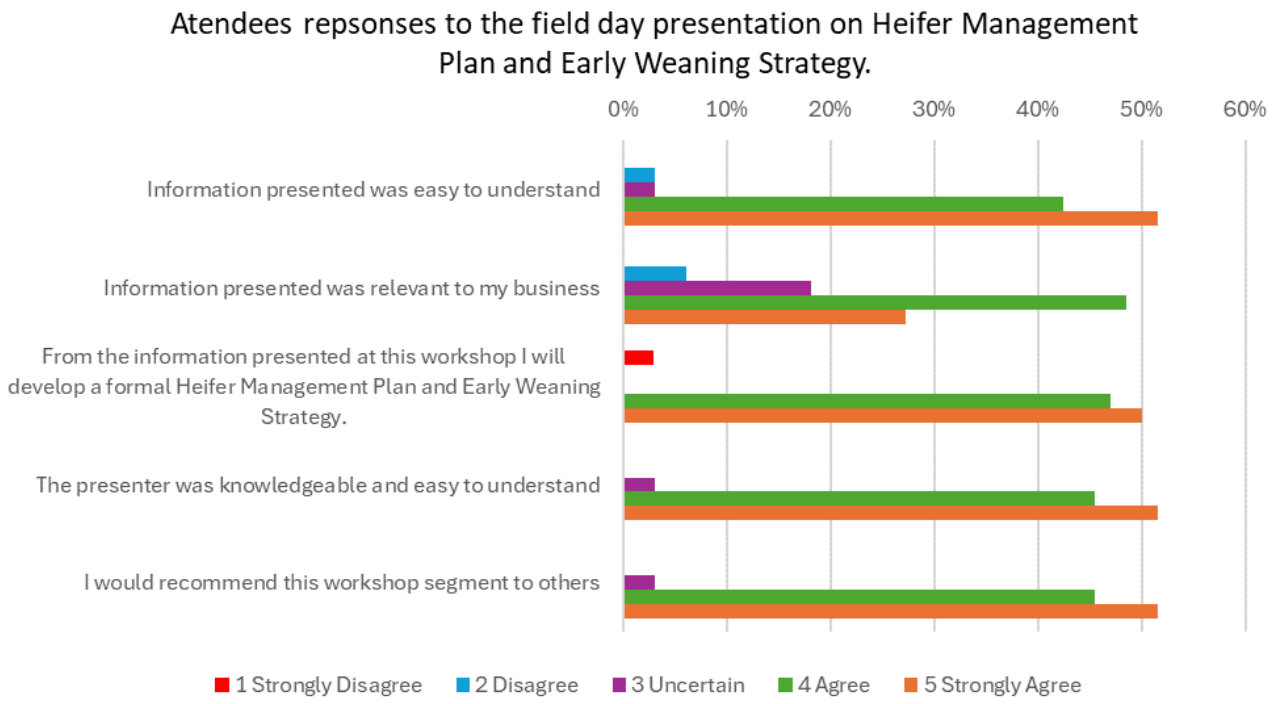


Figure 42. Observer responses to presentation on heifer management plan and early weaning strategy.



4.4.3 Observer responses from heifer management and land condition field day, Stratford (2024)

Below are the observer responses from the heifer management and land condition field day, Stratford, April 19th, 2024.

Figure 43. Observer responses on satisfaction of the of the Stratford field day

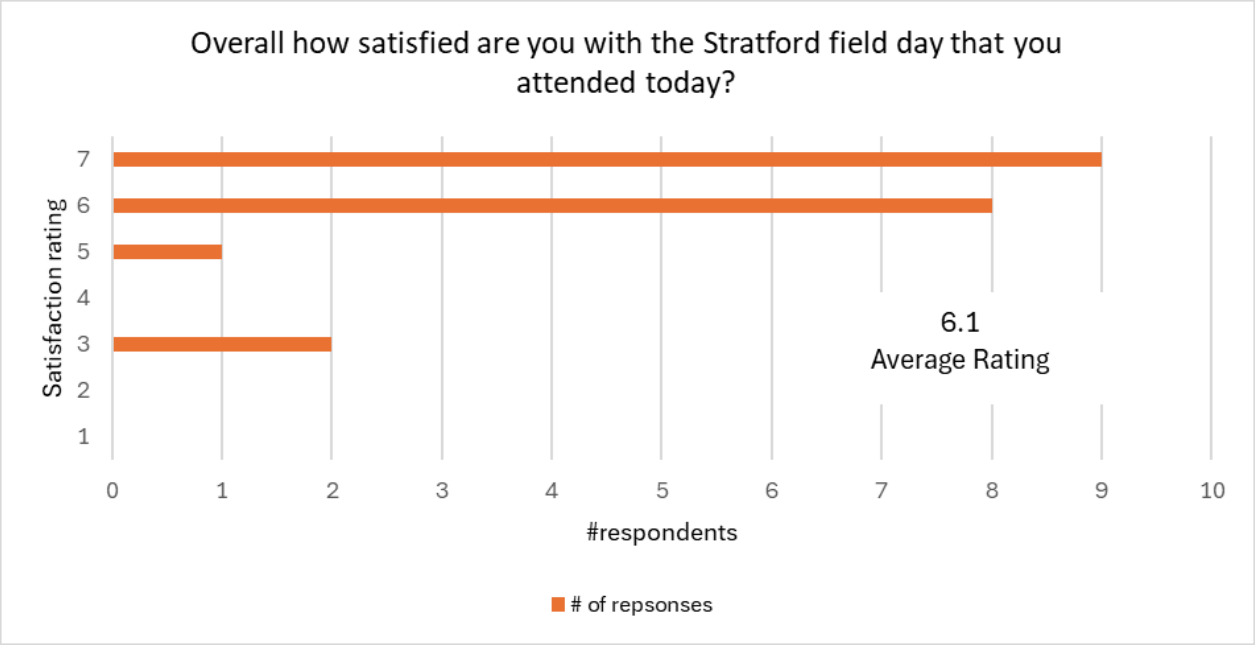
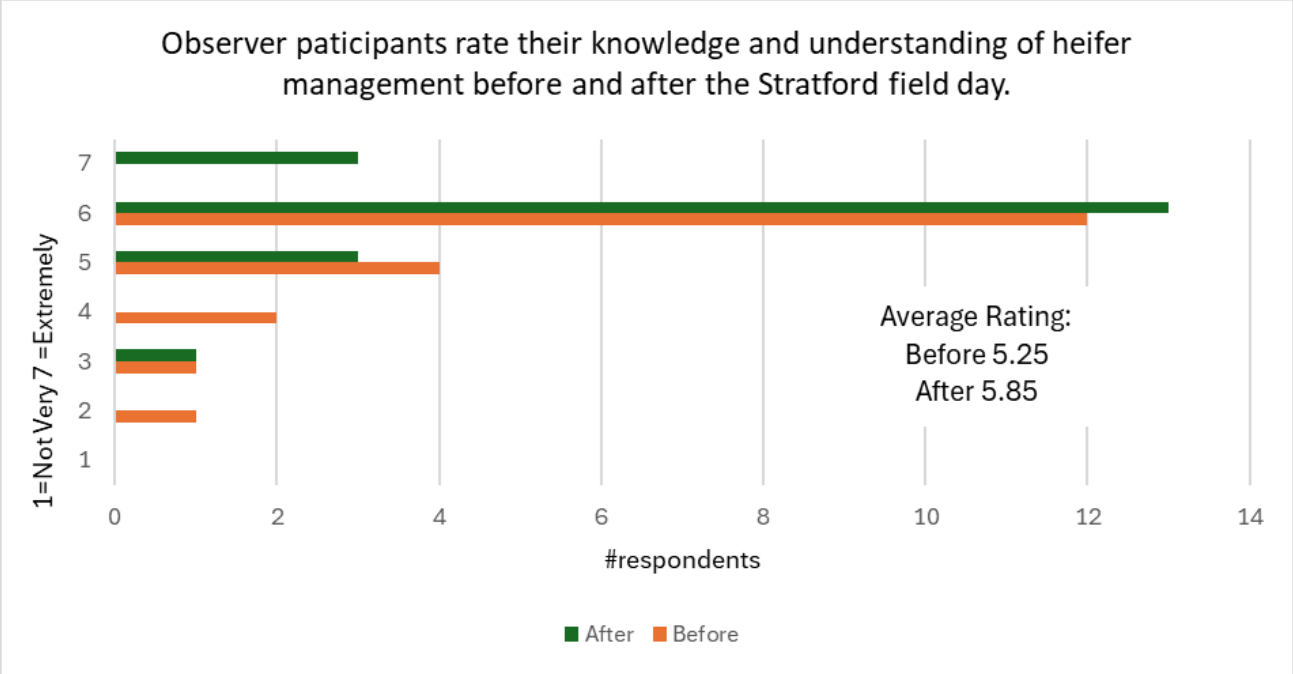


Figure 44. Observer responses on knowledge of heifer management before and after the Stratford field day.



5 Conclusion

Dr Geoff Neithe was asked to give his overview on the progress of the project leading into its final phase:

To date we have not demonstrated one factor/intervention with the data we have collected that has actually lifted young breeder performance – the good seasons and the lack of any acute P deficiency in the herds we have assessed has produced this outcome.

However, the question we need to address is "Has this PDS addressed the need to better manage young breeders and empower producers with the correct process to identify issues when and how they arise?" ….. Dr G Niethe

From observations and conversations, it can be concluded the project has reinforced producers confidence in their ability to handle heifer production challenges as they arise

Due to above average seasonal conditions for the duration of the project and already entrenched management practices producers had little trouble in producing maiden heifers at critical mating weights (CMW). Expecting to find "rather an ill patient" Dr Geoff Neithe was presented with a healthy production system based on good rangeland nutrition management and producers understanding of their country's capabilities.

However with a return to drier seasons the Desert Uplands does not provide room for margin in breeder body condition.

The levels of maiden heifer up to (94%) and first calf cow (75%) conceptions achieved during the project are exceptional and reflect the implementation of BMP principles in the of management of the heifer cohorts so that they have been able to exploit the opportunities of the seasonal conditions. Extra investment in heifer management chasing higher levels is questionable.

Empowered with the knowledge and skills gained from the heifer management project, participants investment into managing the risk of seasonal variability, by continuing to confront the issues that impact heifer performance is likely to be rewarded.

The largest portion of the Desert Uplands can be classified as 'Moderate Production Zone' supporting 110 to 150kg mean annual steer weight gain. As the "rule of thumb" applies it is difficult yearling mating heifers and to expect to have them as enduring cows.

As a consequence, the majority of maiden heifers in the Desert Uplands are joined as well grown two year olds (27 Months), in excess of their CMW that are somewhere between 310 to 340 kgs.

Achieving CMW and having well grown maiden heifers is a foundation prerequisite to achieving 70% re-conceptions in first calf cows.

The fact they have three wet seasons on their backs before first joining secures this situation. Given they are three year old at first calving, they are close to 80% of mature cow weight. If in good body condition, they are certainly in a position to reconceive. Attention to their extra protein and energy needs in the six weeks leading up to calving, will aid this reconception after a successful calving.

Purposeful strategic yearling heifer joinings are not common, primarily because of country type. Those that do achieve it on a consistent basis, have a cocktail of stronger country, softer earlier maturing/ puberty cattle, and strongly entrenched nutritional and strategic grazing programs with infrastructure that accommodates early weaning if the season deems this strategy is necessary.

Data collection is not a major strength nor priority in this production group. Under four persons in the yards at key handling events negates successful data collection. Under this threshold, it's unlikely that conversations about data collection and use are convened. Also, the recent irregularity of seasons knowingly compromises any data integrity and therefore usefulness in directing changes.

As this project was reliant on consistent collection of data over a long period, the number of data points decreased over the four years. It is considered though that the quality of data that was provided was satisfactory.

The “Green Date” is a strong reference for Desert Upland producers. Producers have either knowingly or otherwise structured their management of heifers so that the joining and calving key dates are from 60 up to 120 days earlier than if they adhered strictly to the Green Date joining strategy and heifer management calendar. Green Date provides a base seasonal layer over which heifer reproductive cycle and requirements can be placed i.e. joining, start of calving.

This timing places particular emphasis on Body Condition Score at calving and having ample rangeland nutrition (feed in the paddock) as females commence calving in October (120 days before Green Date).

Regional availability of veterinarians and technicians with practical skills in pregnancy foetal diagnosis need to improve if more producers wish to adopt this practice.

Regional access and transport options for collected samples to laboratories and for analysis of animal and NIRS samples in timely manner needs to improve so as to encourage producer use of these tools.

5.1 Key Findings

5.1.1 Reproductive performance

- Increased conceptions in maiden heifers and first calf cows enhanced herd gross margin/adult equivalent ($GM/AE).
- Achieving Critical Mating Weight coincided with maiden heifer conceptions of 84% and greater.
- Yearling mating is problematic in the Desert Uplands.
- Joining maiden heifers as two year olds (27months) ensures that CMW is achieved.
- Seasonal conditions that deliver above average rainfall and feed availability lead to maiden heifer conception rates higher than 84% and re-conceptions in first calf cows higher than 70%.
- Joinings and calving are up to 120 days and 60 days earlier than recommended by the Green Date joining strategy and heifer management calendar.
- It’s assumed that maiden heifer Body Condition Score (BCS) 3.5+ at calving is paramount for re-conceptions as a first calf cow.
- Focusing on heifer management does enhance reproductive management of the entire breeder herd
- Majority of producers are not prepared to reduce joining period for heifers less than 84 days.
- Producers are prepared to use foetal ageing to reduce the calving period to 63 days or less if breeder numbers are sufficient.

5.1.2 Extension and communication

- Access to heifer management information and extension activities gave producers confidence in their current practices.
- Higher levels of extension communication resulted in higher level of participant engagement.

- "In paddock out of the shed" field day presentations are valued highly by the majority of project participants.
- Better knowledge and skills of recording and organizing business financial data would encourage Cost of Production and gross margin per adult equivalent analysis
- A total of ten events were delivered in the form of field days, workshops, and webinars with 130 observers attending.
- 20 communications were delivered through state, national, regional and local outlets and networks.

5.1.3 Project participation and outcomes

- Two PDS and nine core producers started the project.
- An additional PDS producer was recruited from the core group.
- Two core producers withdrew from the project (one transferred efforts to an alternative project, the others manager relocated. An additional core producer sold their property in year three but contributed to post KASA survey).
- PDS properties experienced seasonal rainfall and pasture growth within the top 15% and 20% of years (75th and 80th percentile) over the project's duration.
- There was an improvement in knowledge and confidence in managing heifers by PDS, core and observer producers.
- Whilst recording of maiden heifer and first calf cow conceptions was adopted, recording accurate weaning percentages were not.
- Prior to the project 10% of participants had a formal heifer management plan.
- After the project 75% of participants had drafted a heifer management plan. Of these, 20% had formalised their plan.
- Before the project, 10% of participants identified their Cost of Production. This did not increase during the project.

5.1.4 Nutritional management

- Soil P ranges from: Extremely Low (0-4ppm), Very Low (4-6ppm), Low (6-9ppm) to Moderate (9-15pmm). The vast majority of paddocks being Low and Very Low.
- Before the project 63% of the participant producers provided phosphorous supplements to heifers
- After the project 100% of the participant producers provided phosphorus or intend to provide phosphorous supplements to heifers.
- Before the project 38% of the participant producers weighed maiden heifers prior to joining.
- After the project 88% of the participant producers weighed or intend to weigh Maiden Heifers prior to joining.
- Before the project 50% of the participant producers pregnancy tested females annually.
- After the project 88% of the participant producers pregnancy tested females annually or intend to pregnancy test annually.
- Before the project 0% of the participant producers assessed heifer body condition at calving.
- After the project 87% of the participant producers do assess or intend to assess body condition at calving.

- Knowledge, skill and practice changes occurred over the project in participants in varying degrees over a broad range of heifer management practices.

5.2 Benefits to industry

- The Girl Power Project produced regionally-specific data sets for beef producers to reference, compare to general rangeland research, and then understand the 'which&why" of these values to prioritise and adapt for improved heifer management idiosyncratic to their grazing entity. These practical explanations and demonstrations, especially with the on-property field days, drives and supports adoption of better practices across the industry.
- The timing of this project also benefited the industry as it demonstrated aspects of key research, learnings and publications on relevant maternal aspects that had recently become available, increasing its dissemination and then adoption.
- The project showed that the paucity of data, collation and then data-driven decision-making is actually the collection of cattle data on-property (negating the assumption that producers simply don't understand it or its value). Highly variable weather patterns, lack of person-power (especially in the yards with this extra tasking, above normal processing of cattle, is needed), lack of regional vets, technicians, extension officers and diagnostic sampling logistics, and the use, maintenance, servicing and integration of the prerequisite equipment (tag readers, in-crush scales, computers, mobile phones et al) are the multiple, layered and defying reasons. The biggest challenge is data collection and its huge seasonal consistencies, then getting enough over the years for valid analysis, and lastly applying directed management changes for heifer and herd improvements.
- The project validated the key data collection points and sets to address suboptimal performance of replacement females in rangeland cattle grazing enterprises (splitting the 'must-haves' from the 'nice2haves').
- The Girl Power Project raised the profile, importance and value of nurturing replacement females in the rangelands, amongst producers, associated agencies and in the media. As rangeland beef producers rebuild, modernise and improve, the project offered realistic guidance to augment this ascension. Again, the timing is astute, as the increasing of feed-lotting to finish rangeland cattle, especially steers, is opening options to rejig paddocks and now prioritise heifer grow-outs.

5.3 Future research and recommendations

- Continue with PDS to further investigate poor heifer and first calvers suboptimal breeder performance in the rangelands.

- Continue with PDS to further investigate options for identifying and then meeting feed deficiencies in immature replacement breeders, with robust costings to inform later adoption and timeframes.
- Continue with PDS to further investigate and trial on-property data decision-making (DDM), collection, analysis and applications, with support and intervention strategies that elevate use and value of DDM in the rangeland beef production.
- Work with agencies, research organisations, feed industry leaders and producers to optimise the cost benefit ratios for deficit feeding of immature breeders in the rangelands, especially through the drier seasons.
- From all of the above, develop a more refined and workable staging methodology to identify and prioritise interventionist strategies to address suboptimal performance in the first four years of life of replacement females in rangeland beef grazing enterprises.

6 References

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The effect of reproductive performance on profitability in breeder herds. Geoff Niethe 2009.

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Zoom presentation with Guest presenter: Associate Professor Dr Luis Prada e Silva - Impacts of Breeder Malnutrition.

Dixon, R. M., & Jackson, D. B. (1998). Nutrition of beef breeder cows in the dry tropics. 2. Effects of time of weaning and diet quality on breeder performance. Animal Production Science, 38(4), 417-42

Future Beef: Desert Uplands region GLM Land Types

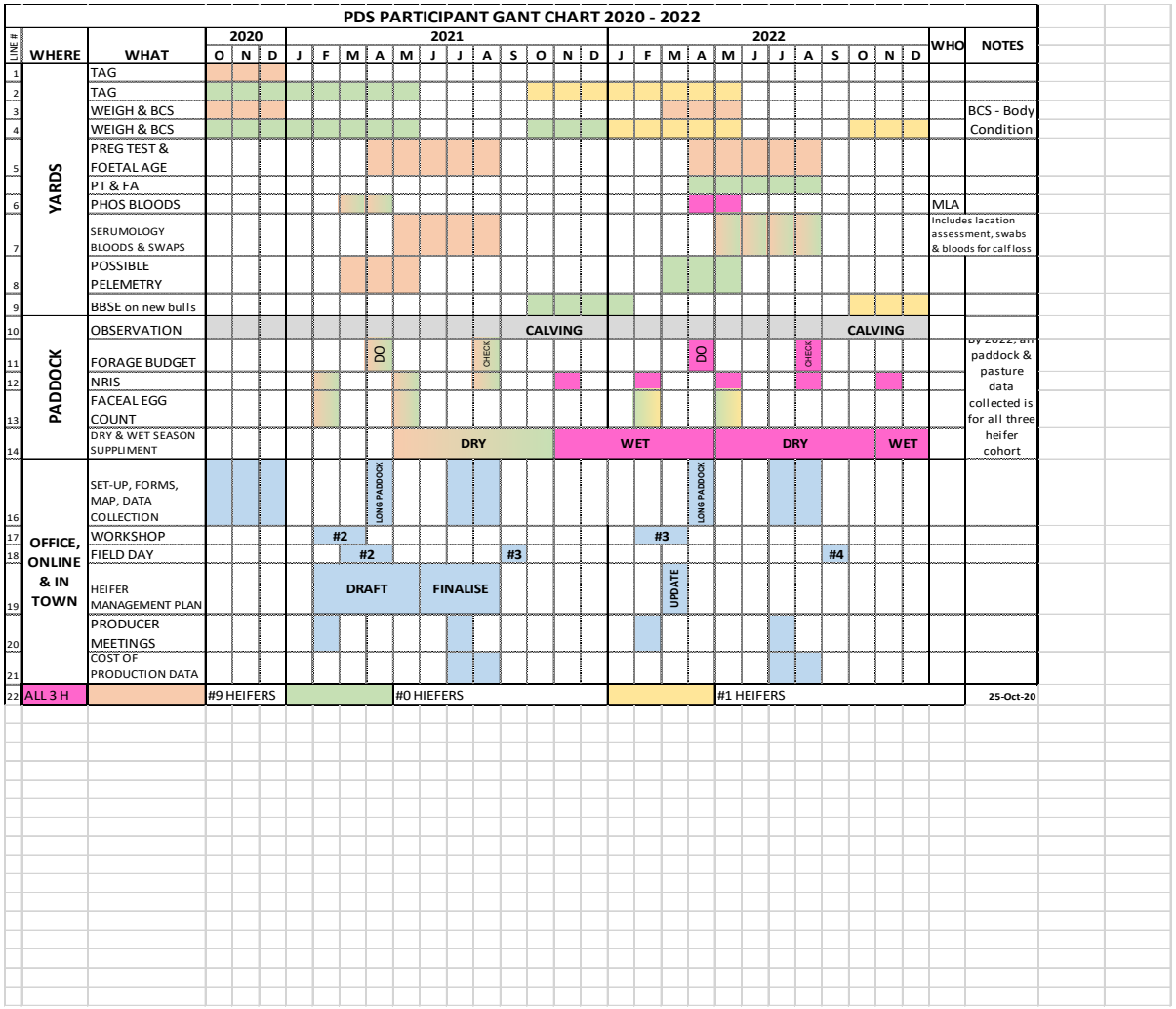
7 Appendix

7.1 Project plans

PROJECT PARTICIPANT OVERVIEW & GANT CHARTS PRODUCED – SEPTEMBER 2020, attached *(2023-24 done, not attached)*

GIRL POWER PROJECT - CORE PRODUCER PARTICIPANT OVERVIEW														
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	NOTES	
2020								PARTICIPANTS CALLED & EOI CONFIRMED						
								PRE-PROJECT KASA SURVEY						
									ATTEND FIELD DAY, 9TH SEPT, BARCALDINE					
									COMPLETE HEIFER MANAGEMENT WORKSHOP#1 (ONLINE or HARD COPY)					
						SELECT, TAG, WEIGH, BCS 50+ #9 HEIFERS, ALL PRE-JOIN DETAILS (NO CHANGE BASELINE COHORT)								
									SELECT, TAG, WEIGH, BCS 50+ #0 HEIFERS (YEARLINGS)					
					INITIAL SET-UP, FORAGE BUDGETTING, DUNG SAMPLING & SUPPLIMENTS #9 & #0 HEIFERS & PADDOCKS									
2021			ATTEND/COMPLETE HEIFER MANAGEMENT WORKSHOP#2						ATTEND FIELD DAY					
			DEVELOP HEIFER MANAGEMENT PLAN											
						WEIGH, BCS, PREG TEST & FOETAL AGE 50+ #9 HEIFERS (NO CHANGE BASELINE COHORT)								
										RECORD CALVING & JOINING DETAILS #9 MAIDENS				
						WEIGH, BCS 50+ #0 HEIFERS			FINAL PRE-JOIN DETAILS RECORDED					
						SELECT, TAG, WEIGH, BCS 50+ #1 WEANER HEIFERS								
				EofW FORAGE BUDGET HEIFER PADDOCKS										
			POSSIBLE DUNG SAMPLING & SUPPLEMENT REVIEW OF PARTICIPATING FEMALES											
2022			ATTEND/COMPLETE HEIFER MANAGEMENT WORKSHOP#3						ATTEND FIELD DAY					
			UPDATE/REFINE HEIFER MANAGEMENT PLAN											
			WEIGH, BCS, PREG TEST & FOETAL AGE #9 BASELINE COWS							RECORD CALVING & JOINING DETAILS #9 SECOND CALVERS				
			WEIGH, BCS, PREG TEST & FOETAL AGE 50+ #0 HEIFERS							RECORD CALVING & JOINING DETAILS #0 MAIDENS				
						WEIGH, BCS 50+ #1 HEIFERS				FINAL PRE-JOIN DETAILS				
				EofW FORAGE BUDGET COW & HEIFER PADDOCKS										
			POSSIBLE DUNG SAMPLING & SUPPLEMENT REVIEW OF PARTICIPATING FEMALES											
2023			ATTEND/COMPLETE HEIFER MANAGEMENT WORKSHOP#4						ATTEND FIELD DAY					
			FURTHER UPDATE/REFINE HEIFER MANAGEMENT PLAN											
			WEIGH, BCS, PREG TEST & FOETAL AGE #9 BASELINE COWS							RECORD CALVING & JOINING DETAILS #9 COWS - THIRD CALF				
				WEIGH, BCS, PREG TEST & FOETAL AGE #0 COWS						RECORD CALVING & JOINING DETAILS #0 SECOND CALVERS					
			WEIGH, BCS, PREG TEST & FOETAL AGE 50+ #1 HEIFERS							RECORD CALVING & JOINING DETAILS #1 MAIDENS				
				EofW FORAGE BUDGET COW & HEIFER PADDOCKS										
			POSSIBLE DUNG SAMPLING & SUPPLEMENT REVIEW OF PARTICIPATING FEMALES											
2024	FINAL HEIFER MANAGEMENT WORKSHOP						ATTEND FINAL FIELD DAY							
			FINAL REVIEW HEIFER MANAGEMENT PLAN											
						WEIGH, BCS, PREG TEST & FOETAL AGE #9 BASELINE COWS (FINAL FOURTH PREGNANCY FOR PROJECT)								
						WEIGH, BCS, PREG TEST & FOETAL AGE #0 COWS (FINAL & THIRD PREGANANCY)								
						WEIGH, BCS, PREG TEST & FOETAL AGE #1 COWS (FINAL & SECOND PREGNANCY)								
				EofW FORAGE BUDGET COW PADDOCKS										
	OSSIBLE DUNG SAMPLING OF PARTICIPATING FEMALES						END OF PROJECT							

KASA = Knowledge Aspirations Skills Attitude ***BCS = Body Condition Score*** ***EofW = End of Wet***



PDS PARTICIPANT GANT CHART 2020 - 2022

LINE #	WHERE	WHAT	2020 O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	2021 J	F	M	A	M	J	J	A	S	O	N	D	2022 J	F	M	A	M	J	J	A	S	O	N	D	WHO	NOTES
1	YARDS	TAG																																									
2		TAG																																									
3		WEIGH & BCS																																								BCS - Body Condition
4		WEIGH & BCS																																								
5		PREG TEST & FOETAL AGE																																								
		PT & FA																																								
6		PHOS BLOODS																																							MLA	
7		SERUMOLOGY BLOODS & SWAPS																																							Includes lacation assessment, swabs & bloods for calf loss	
8		POSSIBLE PELEMETRY																																								
9		BBSE on new bulls																																								
10	PADDOCK	OBSERVATION													CALVING															CALVING												
11		FORAGE BUDGET							DO				CHECK									DO				CHECK															By 2022, all paddock & pasture data collected is for all three heifer cohort
12		NRIS																																								
13		FACEAL EGG COUNT																																								
14		DRY & WET SEASON SUPPLIMENT								DRY								WET												DRY											WET		
16	OFFICE, ONLINE & IN TOWN	SET-UP, FORMS, MAP, DATA COLLECTION							LONG PADDOCK													LONG PADDOCK																			
17		WORKSHOP					#2													#3																						
18		FIELD DAY						#2						#3														#4													
19		HEIFER MANAGEMENT PLAN					DRAFT				FINALISE										UPDATE																					
20		PRODUCER MEETINGS																																								
21		COST OF PRODUCTION DATA																																								
22	ALL 3 H		#9 HEIFERS							#0 HIEFERS																		#1 HEIFERS													25-Oct-20

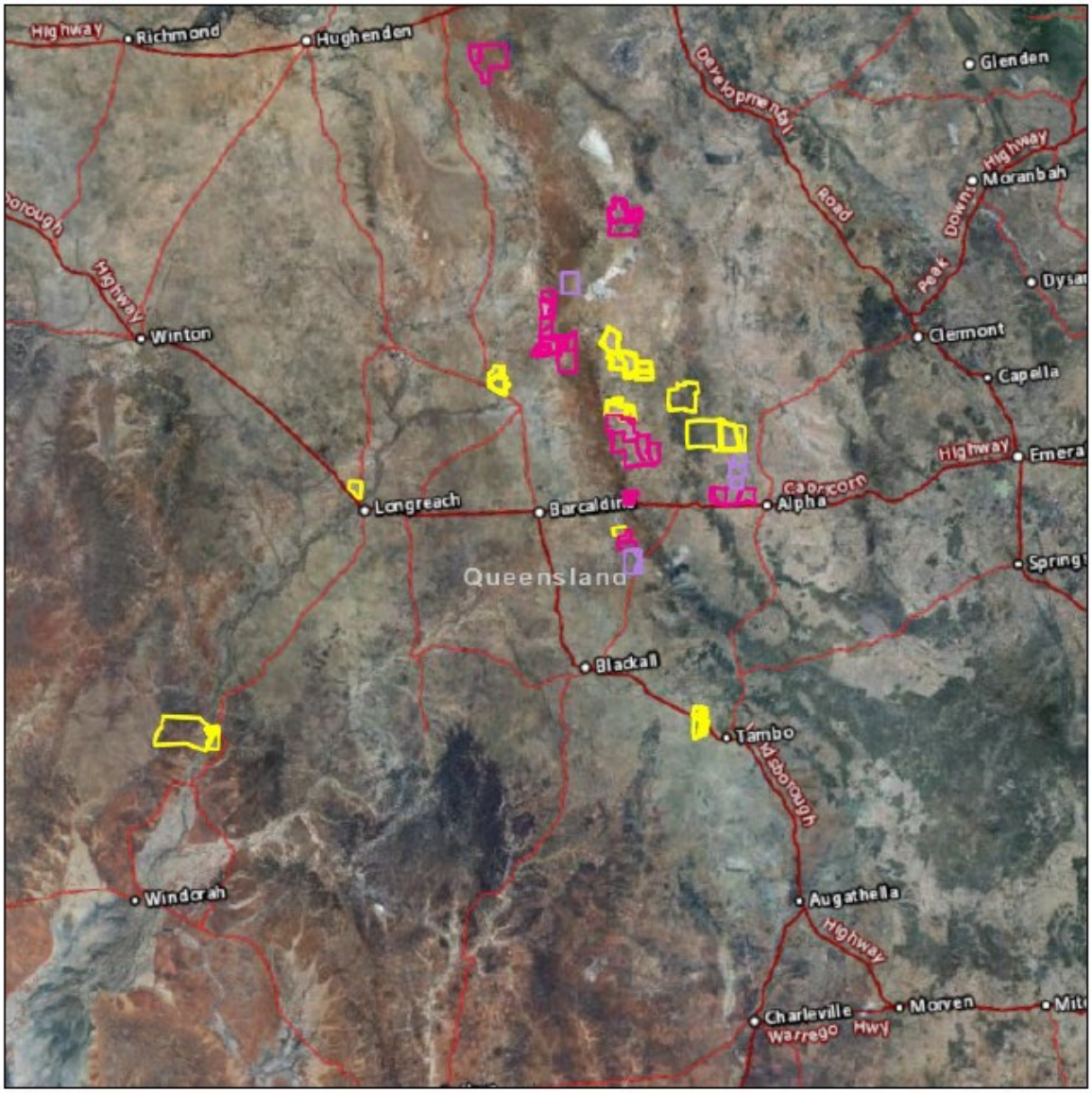
PROJECT PARTICIPANT MAP

Girl Power Producers

Purple -PDS, Pink-Core, Yellow- Observers

20°28'14"S 142°26'17"E

21°5'55"S 148°49'47"E



26°19'58"S 141°45'59"E

26°55'60"S 148°9'28"E

A product of Queensland Globe

Legend located on next page

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0 100 km

Scale: 1:3610081

Printed at: A4

Print date: 13/11/2020

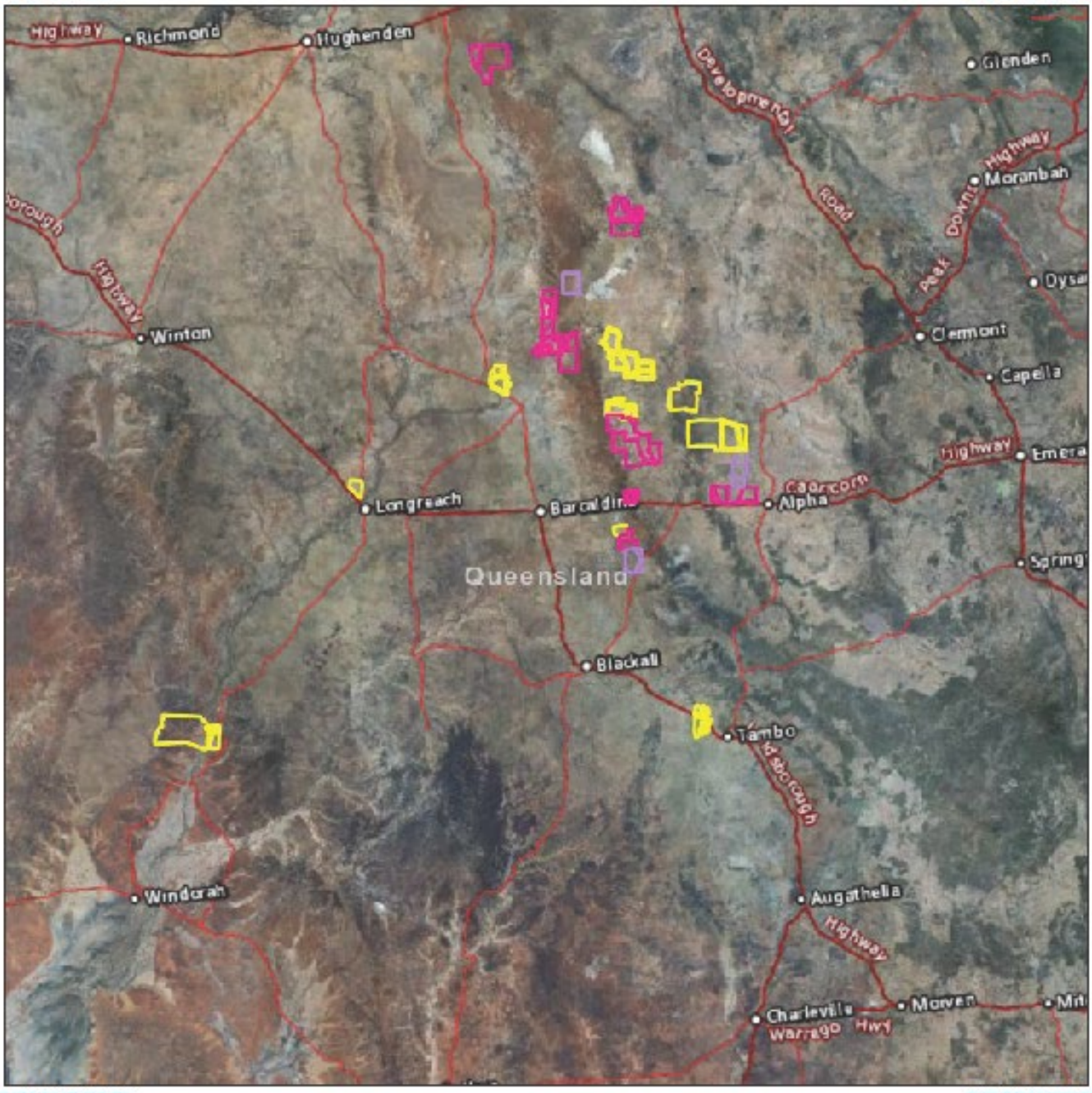
Datum: Geocentric Datum of Australia 1994
Projection: Web Mercator EPSG 102100

For more information, visit https://qldglobe.information.qld.gov.au/help-info/Contact-us.html

Queensland Government
Department of Natural Resources, Mines and Energy

Girl Power Producers

Purple -PDS, Pink-Core, Yellow- Observers



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Print date: 19/11/2020

Datum: Geocentric Datum of Australia 1994

Projection: Web Mercator EPSG:102100

For more information, visit https://qldglobe.information.qld.gov.au/help-info/Contact-us.html

Queensland Government

Department of Natural Resources, Mines and Energy

GPP PRODUCER PROPERTIES & LAND SYSTEMS – MARCH 2021

	GIRL POWER PROJECT - FIFTEEN PROPERTIES' DUSLARA LAND SYSTEMS																	Mar-21
	LAND SYSTEMS	TOTAL 15 PROPERTIES	ADELONG	ALICE RIVER	BLANDFIELD	BEDE	BUNARO	CHERHILL	EUREKA	FORTUNA	GARFIELD	GLENCOE	GLENSTAR	MAFEKING	MONKLANDS	STRATFORD	ULCANBAH	NOTES
			A	R	L	B	N	F	E	F	D	G	G	K	M	S	U	
1	ALBION VALE	5,869	5,869															
2	ALICE CLAYS	19,039		2,680							16,359							
3	BADLANDS	16,753	1,526				1,008			3,035							11,184	
4	COLORADO	8,838		2,636							525	2,033	3,266	4		374		
5	COMPANION CREEK	2,679							362						2,317			
6	DESERT	27,034	1,924	1,272		9,436				14,402								
7	GORDONBROOK	19,366	8		4,902			11,423		3,033								
8	GRANT	1,825							34			49	579	764		399		
9	JOE JOE	8,659													8,659			
10	JORDAN CREEK	4,694										3,658	1,036					
11	LAGOON CREEK	6,054							816						5,238			
12	LAMBTON MEADOWS	7,729							6,625						1,104			
13	NORTHERN PLATEAU	16,982		2,434		2,033	1,391	73		5,300							5,751	
14	REEDY CREEK	5,873	3,064		1,573			306		930								
15	SOUTHERN PLATEAU	31,884		2,383					256		4,106	3,253	974	8,467	76	12,369		MAJORITY LAND SYSTEM
16	STAGMONT SCARP	582			459			19		104								
17	TEXAS FAN	7,937		7,555								381	1					
18	TORRENS CREEK FAN	3,711					3,711											
19	ULCANBAH	15,751															15,751	
20	WATTLEVALE	201					201											
21	WHITE MOUNTAIN	352					353											
22	WISHAW	24,967					24,967											
23	OTHER LESSER LAND SYSTEMS	250	74			17				54			73				32	
	TOTALS	237,000	12,465	18,957	6,933	11,487	31,631	11,822	8,093	26,859	20,991	9,373	5,928	9,234	17,393	13,142	32,029	

GPP PRODUCER TESTING PROCEEDURES – MARCH 2021

TESTING for	What	Who	When	How	Where to Send
PHOSPHORUS: to test the P levels in the blood to see if there is adequate P in the pastures/paddock	Blood samples: need 20 animals only; either yearlings or two year old heifers. Each heifer paddock should be done, though just do one each year please	Vets (prefer): David McKenzie, Longreach Vets, Clermont Vets, or Great Artesian Vets Or Biosecurity Officer if thee doing other work.	During the wet season/while animals are gaining weight, or soon thereafter. To be done by end of May 2021.	Samples are to be taken from tail preferably. Only the serum or plasma is required. It should be FROZEN after it is separated from the red blood cells. The specimen advice note included in the paperwork with the P kits (or on USB: MLA Phosphorus Challenge 2020 Property Animal Data file) and should accompany the samples. If vet has more than one client,	Vets to send frozen samples. Gatton Building 8114, Lab 115, University of QLD Campus, Gatton QLD 4343 (07) 5460 1843 Toll will deliver direct to the Uni. Send Monday, Tuesday & Wednesday only (so it can be analysed for the weekend). Vets to invoice producer. Producers then invoice DUC (include copy of original vet invoice). **Total cost may not be refunded.**

				wait until all mobs are tested and send as one batch.	
	Dung: Please take a photo of dung of animal group when taking bloods	Producer	Around time of collection of bloods.		Producers to hold onto photos. They may be required to verify the season (whether the animals are gaining weight).
	Soil samples: take from same paddock that animals were in that bloods were taken from.	Producer	Around time of collection of bloods or when able.	Instructions should come with kits.	Prepaid envelopes provided with kits.
WORMS: Assessing worm burdens in young females by counting eggs in individual fresh dung samples	Dung: 10 samples from individual yearling animals	Producer	Anytime, though animals more susceptible when grazing short feed	Fresh samples are to be collected. Samples are to be kept REFRIGERATED, cool and fresh (NOT FROZEN). Producers need to organise transport/ freight with Great Artesian Vets or Peter Lynch prior to collecting.	Contact Great Artesian Vets (07) 4741 1223 or vet Peter Lynch (0428 716 455). Vet to invoice producer. Producers then invoice DUC (include copy of original vet invoice). **Total cost may not be refunded.**
PASTURE DIGESTIBILITY: Using NIRS on dried dung samples:	Dung: Pregnant heifers (2021 #9s)	Producer	**3 PDS Producers:** Every 6 weeks **Core producers:** 2 times a year – pasture quality change – June & October	Follow instructions emailed from Ed Woods.	Prepaid envelopes provided with kits.

PLEASE NOTE ALL SIGNED PARTICIPANTS WERE INVITED TO PARTICIPATE IN THE MLA PHOSPHOROUS CHALLENGE, GIFTED THE PREREQUISTITE INFORMATION AND KITS & ENCOURAGED TO PARTICPATE.

7.2 BreedCow Run Summaries, Demonstration site 1 - 2024

Title	93% Maiden 74% First Calf Cows	75% Maiden 60% First Calf Cows
Total adult equivalents	2,660	2,660
Total cattle carried	2,865	2,846
Weaner heifers retained	579	527
Total breeders mated	1,429	1,559
Total breeders mated & kept	1,252	1,153
Total calves weaned	1,157	1,055
Weaners/total cows mated	80.96%	67.66%
Wnrs/cows mated and kept	92.4%	91.49%
Overall breeder deaths	2.38%	2.5%
Female sales/total sales %	48.46%	48.15%
Total cows and heifers sold	531	478
Maximum cow culling age	10	10
Heifer joining age	2	2
Weaner heifer sale & spay	0%	0%
One yr old heifer sales %	46.48%	4.78%
Two yr old heifer sales %	7%	25%
One yr old heifer spay and unmated %	0%	0%
Two yr old heifer spay and unmated %	0%	0%
Total steers & bullocks sold	561	510
Max bullock turnoff age	3	3
Average female price	$1,054.58	$1,070.51
Average steer/bullock price	$993.98	$992.93
Capital value of herd	$2,706,135.76	$2,603,552.39
Imputed interest on herd val	$162,368.15	$156,213.14
Net cattle sales	$1,123,222.35	$1,025,050.23
Direct costs excluding bulls	$258,911.13	$242,696.93
Bull replacement	$14,431.59	$15,742.37
Gross margin for herd	$849,879.63	$766,610.93
GM after imputed interest	$687,511.49	$610,397.79
GM per adult equivalent	$319.50	$288.20
GM/AE after interest	$258.46	$229.47

7.3 Communication and extension activities and outputs

PREPROJECT COMMUNITY & MEDIA BRIEFING NOTE – MARCH 2020

Awaiting final approval through Meat & Livestock Australia's (MLA) Producer Demonstration Sites (PDS) program, the four year GIRL POWER PROJECT will show how to best manage rangeland heifers through their early stages to maximise their life-long reproductive performance and health. Through Producer Demonstrations Sites on grazing properties in central Queensland's Desert Uplands Bioregion of timbered native grasslands and old sandy soils; ways of improving replacement females' growth rates and novice fertility will be trialled, demonstrated and documented.

Referencing four 'Tips & Tools on Heifer Management, Northern Cattle' recently released by MLA, plus their extension and research expertise, the Project will closely tract three heifer cohorts - those born in 2018, 2019 and 2020 through to their second calving, to demonstrate Best Management Practices (BMP). Centred on two demonstration site properties that'll have detailed monitoring within a group of ten core producers who'll individually develop and implement Heifer Management Plans, the emphasis will be on meeting Critical Mating Weights (hard to achieve in the desert and droughts) and then preferencing those maiden heifers who bring their first calf through to weaning.

With the objective to control and narrow mating periods and increase initial and re-conception rates of these young breeders, the detailed data collected on the two PDS will enable a Cost Benefit Analysis of implementing these necessary Best Management Practices. Co-operatively with project officers, the ten core producers will collect the appropriate data from their three consecutive heifer cohorts with their Heifer Management Plan, to further demonstrate its potential. Over the for years, the one thousand and fifty females (10 producers, 3 year groups of 50) will be weighed annually during winter, with pregnancy testing and foetal aging of those mated (500 #8s in 2020, 500 #8 & #9s in 2021, and all 1,500 in 2022 &2023). Forage budgets for the heifer paddocks along with NRIS dung sampling and supplementation strategies will augment BMP, decision making, data collection and producer learnings. Particular testing for blood phosphorous, calf deaths and other impediments to growth and fertility for these young breeders will be executed as needs identified. A larger group of observer beef producers will be involved, with all attending field days, workshops and upskilling sessions, with the core producer data sets there being shared on a collective peer-to-peer learning and adoption journey over the four years.

Knowing the key to lifetime productivity of rangeland beef breeder herds is to give the novice females their best possible start, the GIRL POWER PROJECT was instigated by members of the Desert Uplands Committee, confronted by the long dry and poor calving percentages, seeking MLA collaborative support to work through to a solution. With CHRRUP (Central Highlands Regional Resources Use Planning Cooperative) collaboration, assistance and project officers, the DUC will expectantly soon start the GPP with ten core and two PDS producers committing to four years of learning and implementing best management practice for their replacement heifer program. By widely sharing the gains from these practices, through field days and case studies, and via press, radio and digital media; it's hoped there'll be improved reproductivity performance within rangeland cattle enterprises. With the national confluence of a slow break to the long dry, low breeder numbers and good sale prices, GIRL POWER is needed for the optimum and expedious rebuild.

FURTHER DETAILS ROBYN ADAMS 0746 510 939 NINA HOUSE 0746 510 512

GPP MEDIA RELEASE (MR) #1 – AUGUST 2020

MEDIA RELEASE

To improve heifer performance across the northern rangelands, the Desert Uplands Committee will soon commence their GIRL POWER PROJECT.

Partnering with Meat and Livestock Australia (MLA) and their Producer Demonstration Site (PDS) program, the Committee is working with Central Highlands Regional Resource Use Planning organisation (CHRRUP) and beef producers of the Desert Uplands bioregion, to trial variances of accepted best management practice (BMP) of young breeders.

Running over four years, the Project's aim is to ascertain which practices are effective for novice females in lifting conception and reconception rates, body and birth weights, and becoming healthy, lifelong productive cows, by following three age cohorts from weaners through to the birth of their second calf.
Animal, field and fiscal data will be collected from an array of participating regional beef graziers, with the resultant analysis identifying those better ways to support and background replacement breeders. Distributing these results to producers through field days and write-ups, the project goal is to lift heifer management and female productivity for all our northern cattle enterprises.

The GIRL POWER PROJECT will be launched with the first 'Field Day' being held in Barcaldine on Wednesday, 9th September 2020 at the Barcaldine Showgrounds Ken Wilson Pavilion. Guest Speaker **Russell Lethbridge** will talk of how they have improved their cattle herd's productivity across their properties.
FYI https://genetics.mla.com.au/case-studies/Russell-Lethbridge/?utm_campaign=125998_FFBK%20-%2028%20August&utm_medium=email&utm_source=Meat%20%26%20Livestock%20Australia&dm_i=4PKB,2P7Y,8ZYJI,8MQW,1
Geoff Niethe, consultant to MLA, will lead the day's presentations on best management practice for young females in Australia's extensive northern grazing enterprises.
FYI https://www.mla.com.au/news-and-events/industry-news/spring-into-action/#

QDAF and Biosecurity Officers will provide further information on pertinent feed and disease issues, whilst also proffering updates on pertinent regional matters coming into summer.

Through partnering with CHRRUP, Ed Wood is the Project Officer who'll be working with participating producers over the four years. The two Producer Demonstration Sites will collect extensive information on many aspects, with a further ten core producers following through fifty plus of their heifers from three consecutive years, from weaning through to mature breeders.

Developing and implement enterprise-specific Heifer Management Plans, the heifer cohorts will be pregnancy tested and weighed annually, with forage budgets, NRIS dung sampling and further data collection on growth, calving, sires, supplements and paddocks. These collected and analysed data sets will be shared through field days and workshops, enabling a wide group of observer beef producers to learn how to easily, effectively and efficiently twig their operations to give the replacement females the best start and lifelong productivity.

The long dry and recent good money for cull females has reduced northern breeder numbers; so to REFOCUS FOR A REBUILD, rangeland beef producers are invited to the first GIRL POWER PROJECT FIELD DAY on Wednesday, 9th September in Barcaldine Showgrounds' Ken Wilson Pavilion.

ROBYN ADAMS, GIRL POWER PROJECT, DUC CHAIR 30.8.2020

GPP WORKSHOP/FIELD DAY, BARCALDINE SEPT 2020 – 32 attendees, of which 27 beef producers representing 15 beef enterprises

GPP MEDIA RELEASE (MR) #2 – SEPTEMBER 2020,

Russell Lethbridge, MLA Board member was guest speaker.

Published in The Queensland Coutnry Life:
https://www.queenslandcountrylife.com.au/story/6905698/barcy-set-for-girl-power-heifer-performance-day/

MEDIA RELEASE#2

Though the Westech Field Days were Covid-19 cancelled, thirty beef producers met at the Ken Wilson Pavilion on Wednesday 9th September 2020 to explore better ways manage their young breeders and hear about the Girl Power Project there launched.

The Desert Uplands Committee, partnering with Central Highlands Regional Resource Use Planning organisation (CHRRUP) and Meat and Livestock Australia (MLA) and their Producer Demonstration Site (PDS) program, invited regional beef producers to come together to share information on the needs of replacement females from weaning through to them having their first calves and becoming life-long productive cows.

Currently consulting to MLA as animal production coordinator for the northern Beef Program, Geoff Niethe presented a trove of information and data from over forty years of beef extension, detailing the key aspects of best management practice of breeder females for our extensive rangeland beef operations. As the single most-important factor for a cow to reconceive is her condition at calving, understanding when your particular property/ies 'average' rainfall pattern is vital to ensure they have green pasture is front of them as that calf doubles its mother's energy requirements. For a maiden heifer, this is critical as she is smaller framed, still growing and having to learn on the job her maternal skills. Preg testing with foetal aging, plus secure heifer and bull paddocks were also key take-aways from the dense sessions presented by Geoff.

Well-known northern beef producer Russell Lethbridge consolidated these key elements by giving an account of how his family's multi-property multi-generational business over 350,000 acres; has achieved over 85% pregnancy rate in their two-year heifers through a 12-week joining period from November, culling any females failing to calf by the following December. Fundamentals include lining up production with pasture, phosphorous and supplementary feeding, and targeting days2calving and fertility EBV's in bulls.

The GIRL POWER PROJECT was launched with many attending becoming participants in the demonstration trials over the next four years. They will monitor and collect data on their #9, #0 and #1 heifers from weaners through to calving, develop then implement a property and enterprise specific Heifer Management Plan, then tweak their practices to improve their replacement female

program. Meeting, workshops and field days will enable shared learning between these core producers and a wider group of observers.

Longreach-based QDAF Officers, Jane Tincknell and Leanne Hardwick provided further regionalised information and relevant departmental updates, with Blackall's Biosecurity Queensland Officer Dan Burton revising reproductive diseases and treatments, and current agricultural threats such as swine fever.

The still-enduring long dry and recent good money for cull females has reduced northern breeder numbers; so the heifer portion of the breeder herds is over well 25%. These young females hold the biggest promise of a return to profitability, especially with the expectant good season a'coming, and also the biggest threat to any self-replacing breeder operation if poorly managed through their early life. The Girl Power Project seeks to demonstrate those heifer management practices that work in our rangelands, and to optimise the rebuild and productivity of our cow herds. Those who seek to know more can contact Robyn Adams DUC Chair or Ed Wood, CHRRUP's Project Officer for future activities or participation.

ROBYN ADAMS 46510939 stratford01@bigpond.com; ED WOOD 0428 874 240 ed@chrrup.org.au
14.9.2020

PRODUCER BASELINE DATA & IMAGE SET – Attached page 1 of 3 pages (#8-#0 heifers)

STRATFORD HEIFERS AUGUST 2020 **8 PAST-PADDOCK #8H, AUGUST 2020**

#8 PTIC HEIFERS; AVERAGE WEIGHT 341kg

#8 PTE HEIFERS; AVERAGE WEIGHT 282kg

#9 HEIFERS; AVERAGE WEIGHT 271kg

#0 HEIFERS; AVERAGE WEIGHT 189kg

3 YEAR DRAFTS OF REPLACEMENT FEMALES AT STRATFORD, SOUTHERN PLATEAU LAND SYSTEM,

NATIVE PASTURES, UNCLEARED COUNTRY

ROBYN ADAMS

6.9.2020

GPP HEIFER MANAGEMENT MANUAL – MARCH 2021, front page attached, 30 pages

GIRL POWER

A Producer's Guide to the Principles and Best Management Practice of Replacement Heifers in the Rangelands

Funded by Meat and Livestock Australia through the Producer Demonstration Site (PDS) Program,
The Girl Power Project is a Desert Uplands Committee initiative,
Partnering with CHRRUP Limited and
Beef Producers of the Desert Uplands

GPP HEIFER MANAGEMENT WORKSHOP – MARCH 2021

GPP PRODUCER PINK PERKS – MARCH 2021 (Engagement incentives, as part of the Aramac Heifer Management Workshop)

PRODUCERS PINK PERKS **10.3.2021**

Page 11

THE GIRL POWER PROJECT is working with regional feedstock suppliers so that they can assist participating producers to trial new and alternative supplements, and their cost benefits.

Page 12

THE GIRL POWER PROJECT is cost off-setting NIRS Dung Sampling for the three young heifer mobs for each participating producer, who can collect and dry the dung to be then posted to the lab for analysis.

Page 15

"THE GIRL POWER PROJECT will provide a diagnosis of the P status of paddock but:-

1. **Samples must be submitted to lab by end of May**
2. **If determining if pastures are deficient – remove supplement for at least 2 weeks prior to sampling**
3. **If determining if stock are getting adequate P – simply sample regardless of supplement.**

PIP test is the best test to determine adequacy of P in the diet – collect a kit today & organize a vet/technician.

Page 17

Collect 10 fresh dung samples in the paddock.

Put into Zip Top plastic bags and refrigerate.

Contact Livestock Veterinary Services

Ph 0428 716455 ASAP and dispatch as instructed.

WESTECH FIELD DAYS MEDIA RELEASE – AUGUST 2021, for Barcaldine, attached

WESTECH BRIEF#2

To improve heifer performance across the northern rangelands, the Desert Uplands Committee has partnering with Meat and Livestock Australia (MLA) and their Producer Demonstration Site (PDS) program, and working with CHRRUP (Central Highlands Regional Resource Use Planning organisation) and beef producers of its Bioregion, to trial variances of accepted best management practice (BMP) of young breeders.

Running over four years, the Project's aim is to ascertain which practices are effective for novice females in lifting conception and reconception rates, body and birth weights, and becoming healthy, lifelong productive cows, by following three age cohorts from weaners through to the birth of their second calf. Animal, field and fiscal data will be collected from an array of participating regional beef graziers, with the resultant analysis identifying those better ways to support and background replacement breeders. Distributing these results to producers through field days and write-ups, the project goal is to lift heifer management and female productivity for all our northern cattle enterprises.

The GIRL POWER PROJECT was launched with the first 'Field Day' being held in Barcaldine on Wednesday, 9th September 2020 at the Barcaldine Showgrounds Ken Wilson Pavilion. Guest Speaker (MLA board member & progressive manager) **Russell Lethbridge** presented on how they have improved their cattle herd's productivity across their properties. **Geoff Niethe** (vet & consultant to MLA) lead the day's presentations on best management practice for young females in Australia's extensive northern grazing enterprises, and continues to advice on pertinent bovine matters. A further March session in Aramac took producers through key aspects of Heifer Management.

Through CHRRUP, Ed Wood is the Project Officer who'll be working with participating producers over the four years. The two Producer Demonstration Sites will collect extensive information on many aspects, with a further ten core producers following through fifty plus of their heifers from three consecutive years, from weaning through to mature breeders. Developing and implement enterprise-specific Heifer Management Plans, the heifer cohorts will be pregnancy tested and weighed annually, with forage budgets, NRIS dung sampling and further data collection on growth, calving, sires, supplements and paddocks. These collected and analysed data sets will be shared through field days and workshops, enabling a wide group of observer beef producers to learn how to easily, effectively and efficiently twig their operations to give the replacement females the best start and lifelong productivity.

The long dry and recent good money has reduced northern breeder numbers to the lowest in thirty years; so it's perfect time to REFOCUS FOR A REBUILD, and get the new girls up – up to good weights, good health and primed for years of rearing good calves.

Hence the tripartisan consortium would like to invite rangeland beef producers to the second GIRL POWER PROJECT FIELD DAY at Westech, 7 & 8th September. We will be partnering with QDAF, in sharing their tent space, so come along and find out what you may be able to do to improve your heifer trajectory and get more and better calves.

ROBYN ADAMS, GIRL POWER PROJECT, DUC CHAIR 07 46510939 0447 179 974
stratford01@bigpond.com

WESTECH FIELD DAYS & HANDOUTS – SEPTEMBER 2021. Project Lead and Project Officer were at the QDAF site just in from the main gate for most of the two days, with 2 large posters and the Heifer Manual Wheel made large and interactive; and these two attached handouts, attached. A majority of participants attended, as did other producers (good result for Covid).

Hand out content:

ENPOWERING FUTURE BREEDERS BY OPTIMISING THEIR INITIAL TRAJECTORY

The long dry and recent good money has reduced northern breeder numbers to a thirty year low; so perfect time to REFOCUS 4 A REBUILD by prioritising the performance of your replacement heifers.

The GIRL POWER PROJECT was launched in Barcaldine on September 2020, with guest speaker Russell Lethbridge presenting on how they have targeted and improved their cattle herd's productivity. Geoff Niethe, as consultant to MLA, canvassed best management practice for young females in Australia's north.

The project is following three age cohorts from weaners through to the birth of their second calf, to determine which practices are cost-effective for novice females in lifting conception and reconception rates, body and birth weights, and becoming healthy, lifelong productive cows, Animal, field & fiscal data will be collected from participating beef producers, with the resultant analysis identifying those better ways to support and background replacement breeders.

Ed Wood is the CHRRUP Project Officer. The two Producer Demonstration Sites will collect extensive information on many aspects, with a further 10 core producers following through 50 plus of their heifers from three consecutive years, from weaning through to mature breeders. Let us know if you would like to be involved.

The heifer cohorts will be pregnancy tested and weighed annually, with forage budgets, NRIS dung sampling and further data collection on growth, calving, sires, supplements and paddocks. Collected data will be shared through field days and workshops, enabling a wide group of observer beef producers to learn to easily, effectively and efficiently twig their operations to give the replacement females the best start and set-up for lifelong productivity and good health.

The Desert Uplands Committee has partnered with Meat and Livestock Australia (MLA) and their Producer Demonstration Site (PDS) program, and working with CHRRUP (Central Highlands Regional Resource Use Planning organisation) and beef producers, for their four year GIRL POWER PROJECT.

ROBYN ADAMS, GIRL POWER PROJECT, DUC CHAIR 07 4651 0939 0447 179 974

ED WOOD, GIRL POWER PROJECT OFFICER, CHRRUP 07 4982 2996 0428 874 240

Points to reflect on....

Young Breeders are a large part of your herd.

In a typical western Q, self-replacing breeder enterprise, joining @2 years & culling @ 10; 43% of your breeding herd is 4 years or younger.

So helping these youngins have more calves, we markedly increase all-of-herd productivity, turn-off, cash flow and profit.

So consider these for ideal Critical Mating Weights - CMW

- Give them the best pasture
- Post weaning supplementation
- Targeted Wet Season & P supplementation if deficient
- Watch for worms – test & treat
- Forage budget and maybe adjust stocking rate
- Spike Feed in the third trimester of pregnancy
- Control Mate
- Aim to eventually join your maiden heifers for just 2 cycles (6 weeks). This gives these novice mothers, with their first calf at foot and still growing herself, that extra time to re-conceive, and then be synchronised when they join the main breeder groups.

GIRL POWER PROJECT 2021

GPP POST-WESTECH MEDIA RELEASE – DECEMBER 2021

QUEENSLAND COUNTRY LIFE article - https://www.queenslandcountrylife.com.au/story/7559756/girl-power-the-focus-for-northern-herd-rebuild/

With over two thousand heifers now pink-tagged for the Girl Power Project, participating beef producers in central Queensland's Desert Uplands are monitoring a selection of their replacement females, from weaning through to them having their second calf.

Lead by the Desert Uplands Committee, the GP Project is part of Meat & Livestock Australia Producer Demonstration Site program – improving livestock production across the nation through on-property trials. Collaborating for delivery with Central Highlands Regional Resource Group, The Girl Power Project specifically aims to demonstrate those better management practices that improve maiden conception weights, rates and time frames, and then as novice mothers, their reconception and second calving outcomes.

With this focus on specific management of these young females, in three age cohorts across twelve grazing properties; it is anticipated results and learning from the four-year project can then be applied across the Australian rangelands. With low breeder numbers from the long dry and now high beef prices retarding further the herd rebuild, this MLA PDS Project is timely and valuable for the beef industry.

MAIDEN HEIFER WITH HER FIRST CALF SUCKLING

The Desert Uplands Committee is pleased with Allflex's support through discounting the printed pink tags which is enabling fast visual in-paddock identification, necessary right now as the first cohort of heifers are now having their first calf. The Committee is also working with the Queensland Department of Agriculture & Fisheries for further possible collaboration, as the data on young female growth rates and its relationship to conception and reconception rates through the variable seasons is not well understood in different land and enterprise types across the state. Early next year, Field Days will be held on participant properties, so regional cattle producers rebuilding their breeder herds can come along and discuss ways to restore cattle, pasture and productivity with this La Nina opportunity.

For more details, contact **Project Officer Ed Wood**
P 07 4982 2996 **M** 0428 874 240 **E** ed@chrrup.org.au www.chrrup.org

GPP REGIONAL REPORTING – MARCH 2022

The Girl Power Project was continually updated at the trimonthly Committee Meetings of the Desert uplands Committee, over its four years; plus any catch-ups and periodic updates. Attached is the first page of such, as an exemplar from March 2022.

Website article https://www.desertuplands.org.au/girl-power-project/

Please note the Project Lead and Committee members also kept WQNARC updated on progress, and worked extensively with both WQNABRC and MLA BeefUp Forum contractors to design, develop and detail the content for the September Blackall BeefUp Forum.

DESERT UPLANDS COMMITTEE
Chair's Report & Snapshot
March 2022

Welcome to new members who joined at the January AGM, with a third of the Committee now having done so this decade. With the executive also changing, this report is to give a better 'snapshot' of the current Committee activities, status and membership. In its sharing, please feel free to ask any queries, proffer any suggestions, and progress ideas through conversations with committee members. For your immediate reference, I have appendixed the current brief on the Bioregion & Committee

Our Motto *Delivering Community Solutions for Regional Issues*

GIRL POWER PROJECT

GPP is an MLA (Meat & Livestock Australia) PDS (Producer Demonstration Site) program project over four years trialling BMP (Best Management Practice) for nurturing replacement heifers within the challenges of Desert Uplands' (and similar wooded arid rangelands) grazing properties. DUC is partnering with CHRRUP (Central Highlands Regional Resource Planning, Emerald) with Ed Wood the Project Officer. Started late in 2020 with the introductory workshop in Barcaldine, GPP now has over 2000 heifers in twelve enterprises; with producers tracking growth, conception and other elements of the #9, 0 & 1 females.

Ed has recently submitted the Annual Report to MLA, and another to AEC. With both now approved, we'll investigate the project becoming part of NB2, and those participants who wish to continue to add their #2 heifer weaners this half year. Allflex has supported through half-price printed pink maxi tags, and QDAF and Central Queensland University is anticipated to partner through the Walkover Weigher which will paddocked at *Stratford* once re-floored. Data will be dispatched electronically to CQU for analysis to better understand growth rates of young females. As winter dries off pastures, Ridley is also supporting with trial lick to ascertain its cost-benefit of increased weight gains. MLA consultant and cattle expert Geoff Niethe leads the twice yearly workshops and field days, emphasising mating weights and timings for maidens and rebreeds/second-calvers. (AEC - Animal Ethics Committee - in QDAF; NB2 – MLA's Northern Breeding Business Program)

Next week are two Field Days: Tuesday 22nd March at *Monklands*, Alpha/Jericho, and Thursday 24th at *Bede,* Aramac

See you there - Bring family/friends/neighbours

Sept 2020-Aug 2024. FUNDING MLA $100,000 over 4 years, $50,000 Project Officer & travel (to CHRRUP), $50,000 producer reimbursement & project delivery costs. Other income from P-Challenge, with $8,128.74 in the account currently. A milestone payment will come in soon as MLA has accepted that Annual Report just submitted.

BEEFUP FORUM

With Nina House as chair of WQRBRC (Western Queensland Regional Beef Research Committee) and the MLA PDS GPP happening, we've agreed for DUC to support a regional Beef Forum, and it's been resolved to be in Blackall in September. MLA essentially contracts out this event management, organising and promotion. To make it more suited to us (rather than a FIFO kind of

TWO FIELD DAYS – MONKLANDS & BEDE, MARCH 2022. Media release & Flyer attached.

22 MARCH 2022
8.30AM TO 5.30PM
MONKLANDS, ALPHA

24 MARCH 2022
8.30AM TO 5.30PM
BEDE, ARAMAC

CONNECTING THE DOTS

Incorporating the Girl Power Heifer Project Update and **The Forage Budgeting Land Condition Field Day**

Topics that will be covered on the day include:

- The relationship between land condition, production and profitability
- Preparing heifers for a life time of production
- Factors affecting heifer performance
- Early weaning strategies
- Reproductive disease update
- Feed budgeting - producer panel

Featured Speakers
- Dionne Walsh, Range IQ, Darwin, NT
- Geoff Niethe, MLA, Northern Australia
- Participating producers

Please bring a chair

CHRRUP

RSVP by 16 March 2022 to Ed Wood at CHRRUP on 0428 874 240 or email ed@chrrup.org.au

The Girl Power Project is funded by Meat and Livestock Australia's Producer Demonstration Site program. The Forage Budgeting in the Fitzroy and Belyando project is funded through the Queensland Government's Reef Water Quality Program.

mla MEAT & LIVESTOCK AUSTRALIA

Queensland Government

MEDIA RELEASE MEDIA RELEASE MEDIA RELEASE MEDIA RELEASE MEDIA RELEASE MEDIA

Young heifers feeding into a fresh paddock after weigh-in for the Girl Power Project

FEEDING FOR THE FUTURE – MANAGING PASTURES TO OPTIMISE HEIFER GROWTH RATES, TO IMPROVE LIFELONG FERTILITY AND LIFT HERD PRODUCTIVITY

Two upcoming Field Days in central west Queensland will explore the management of pastures and young replacement heifers in our rangelands. The links between the good pastures, post-weaning growth rates and weights of heifers, and these improving enterprise production and profitability will be discussed and demonstrated.

On 22nd March at *Monklands* between Jericho and Alpha, and on 24th March on *Bede* north of Aramac, presenters Dionne Walsh of Range IQ and Geoff Niethe of MLA (Meat & Livestock Australia) will discuss critical aspects of monitoring and responsive management, along with participating beef producers.

Both properties are involved with the Girl Power Project. This is a collaborative four-year program between MLA and its PDS (Producer Demonstration Site) Program, CHRRUP (Central Highlands Regional Resource Use Planning organisation) with Ed Wood as Project Officer, and the Desert Uplands Committee. To learn, demonstrate and improve the management of rangeland heifers from weaning through to having their second calf, twelve regional producers are tracking their heifers' weights and growth, calving and reconception rates. Under a self-developed, enterprise-specific Heifer Management Plan, these producers will adapt their management options over the four years and three-age cohorts of juvenile females – the #9, #0 and #1's.

Eighteen months of data now been collected and collated from these six hundred plus heifers, all individually pink-tagged and numbered with a sponsorship from Allflex. Along with periodic weighting and pregnancy testing, participating producers have also tested for blood phosphorous levels, and used dung sampling to check for internal parasites and NIRS (Near Infrared Spectrometry) for quality of pasture intake.

As April nears, graziers are encouraged to do End-Of-Wet pasture assessments to determine quality and quantity of the standing haystack to get their heifers and all of their breeders, through winter to the next summer rains. Dionne Walsh of Range IQ will come down from Darwin and present on land condition assessment, forage budgeting and other options available to rangeland beef producers. MLA's consultant Geoff Niethe will talk maiden heifer weights, challenges of reconceiving with first-

born at foot, and options such as early weaning and others to optimise all-of-enterprise productivity and profitability. Generally in the rangelands, these young females to four years of age, are the trickiest to manage, yet make up over 40% of the breeder herd, so this extra effort can have a direct improvement in productivity.

Throughout the two Field Days, attending beef producers will have opportunities to understand refined aspects of pasture and heifer management, and to ask directly questions of the presenters so that the data, demonstrations and field observations can best be adapted to their own enterprise. The long dry and good money for cull females has reduced northern breeder numbers to a thirty year low; so now is the perfect time for a Refocus for a Rebuild, by attending and appreciating the nuances of achieving better outcomes for pastures and young replacement females in our rangeland beef enterprises.

DIONNE WALSH, PRESENTER, RANGE IQ
0417 083 638 dionne@rangeiq.com.au

GEOFF NIETHE, MEAT & LIVESTOCK AUSTRALIA
0428 712 756 g.niethe@bigpond.com

ED WOOD, GIRL POWER PROJECT OFFICER, CHRRUP
0428 874 240 ed@chrrup.org.au

ROBYN ADAMS, GIRL POWER PROJECT LEAD & DUC CHAIR
07 4651 0939 & 0447 179 974 stratford01@bigpond.com

By
ROBYN ADAMS
For DUC & GPP
4.3.2022

POST FIELD DAY MEDIA RELEASE – MAY 2022

MEDIA RELEASE MEDIA RELEASE MEDIA RELEASE MEDIA RELEASE MEDIA RELEASE MEDIA

Young heifers feeding into a fresh paddock after weigh-in for the Girl Power Project

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Both properties are involved with the Girl Power Project. This is a collaborative four-year program between MLA and its PDS (Producer Demonstration Site) Program, CHRRUP (Central Highlands Regional Resource Use Planning organisation) with Ed Wood as Project Officer, and the Desert Uplands Committee. To learn, demonstrate and improve the management of rangeland heifers from weaning through to having their second calf, twelve regional producers are tracking their heifers' weights and growth, calving and reconception rates. Under a self-developed, enterprise-specific Heifer Management Plan, these producers will adapt their management options over the four years and three-age cohorts of juvenile females – the #9, #0 and #1's.

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The current autumn wet again changes the heifer plans, with further options now available to most who have self-replacing breeder herds.

Throughout the two Field Days, attending beef producers came to better understand refined aspects of pasture and heifer management, directly asking questions of the presenters so that the data, demonstrations and field observations can best be adapted to their own enterprise. The long dry and good money for cull females has reduced northern breeder numbers to a thirty year low; so now

is the perfect time for a Refocus for a Rebuild, by appreciating the nuances of achieving better outcomes for pastures and young replacement females in our rangeland beef enterprises.

By
ROBYN ADAMS
For DUC & GPP
7.5.2022

DESERT DAZE – LAKE DUNN, JUNE 2022. Week-end lake side (Desert Rec Club) with MLA Update by board member Russell Lethbridge, whom we also updated on the GPP, a NACP session with Vicki Mayne and presentation on Wambiana Grazing Trials. Most of the GPP participants attended, with over 30 for the main day.


Celebrating Our Desert Uplands
& 25 years of the
Desert Uplands Committee
DESERT DAZE 2022
LAKE DUNN, ARAMAC
Sunday 5th & Monday 6th June
PENTLAND
Sunday 12th & Monday 13th June
• Guided Property Tours & Walks • Birding and Ecologies
• NACP Weather Forecasting Workshop with USQ & QDAF
• WambianaGold, Peter O'Reagain QDAF • Producer Updates
• Professional Drone Sessions with Editing & Using Footage
• EcoArtist-In-Residence leading Community Creativity
• Cathy Drummond Entertains • Shared Meals
BARCALDINE REGIONAL COUNCIL
CHRRUP
mla
FLYING ARTS
DRY TROPICS
JAMES COOK UNIVERSITY
For more information, queries & booking - Visit: desertuplands.org.au
email: info@desertuplands.org.au or call: 0447 179 974

GPP UPDATE AUGUST 2022

GIRL POWER PROJECT 9th AUGUST 2022

To ALL PARTICIPATING PRODUCERS in the GIRL POWER PROJECT,

Many thanks for the two years of commitment, time, energy, monitoring, weighing, patience and all the physical and mental efforts that you have given to this project, and for your young female cattle to be so involved. It is nice to say that the biggest challenge is how the better seasons is changing the trial on how we need to manage in our upcoming replacements.

Our next *'Field Day'* and *Collective Gathering* is the **BeefUp Forum in Blackall.** Please find the flyer for **Tuesday 6th September** at the Saleyards, with more details and how to book. Geoff, Ed and Robyn will be presenting on ***The Project SoFar*** and we would greatly appreciate your attendance. The rest of the day's program flows from this, focusing on *Females, Fertility, Feed and the Future*, with cattle bought into the ring.

With another eight coming in from MLA, Cattle Council and our representative bodies, we would also like to invite you to a **Casual BBQ and Drinks on Monday Evening, 5th September at the Blackall Historical Woolscour**, so you can meet with and share your producer insights with these visitors. It is important we take this opportunity to enrich their understanding of beef production in outback Queensland, and seek your support to engage frankly with them over drinks and a lamb bbq.

Further, with us all in Blackall, and MLA representatives who oversee this PDS Program coming west from Brisbane and Sydney; we're planning a **GPP Producer Meeting on Wednesday Morning, 7th September**. We have been invited to extend this project, so this meeting is an important occasion where we can readily and candidly discuss issues with GPP, so that those who choose to proceed further do so with these addressed. There are other future prospects for collaborative projects with MLA, with this meeting critical to ensure us regional beef producers can direct these to maximise preferred investment and outcomes.

MLA Board member representing northern producers, Russell Lethbridge will attend these Blackall events, so again, use this chance to inform MLA of pertinent beef production issues that need addressing, at a board level.

In summary, please come to Blackall, participate, learn and enjoy:

- **Monday Evening 5th September - Casual BBQ & Drinks, Blackall Woolscour**
- **Tuesday 6th September - BeefUp Forum, Blackall Saleyards**
- **Wednesday Morning 7th September - GPP Producer Meeting, Blackall Showgrounds (TBC)**

Please let Ed or Robyn know if you are not to be able to make these gatherings

ED WOOD 0428 874 240 **ROBYN ADAMS 46 510 939 or 0447 179 974**

BEEFUP FORUM – BLACKALL, SEPTEMBER 2022. The Forum was planned over the preceding months, with many regional presenters, all focussing on elements required to empower replacement heifers and drive herd productivity. Multiple presentations were made by Project Officer, Ed Wood and MLA Project Consultant Geoff Niethe, elucidating project data and results to date. Over 70 attended the day, most successful BU Forum post-Covid. One of many media releases and community publicity items attached. Also the hand-out for attending project participants.

https://www.queenslandcountrylife.com.au/story/7936363/beefup-forum-beefs-up-blackall/

BEEFUP FORUM COMING TO BLACKALL SALEYARDS

On Tuesday 6th September, the MLA BeefUp Forum will be held at the Blackall Saleyards. A full day of presentations focussing on the females of the beef herd and how to maximise life-long fertility and productivity will include key findings so far with the Girl Power Project, an MLA PDS program involving twelve regional beef producers.

In the ring with demonstrative stud bulls, heifers and cows, and under the marquees, leading industry professional will present on critical aspects for self-replacing breeders. Relevant updates will include the latest on pain relief, reproductive diseases and the FMD threat.

The Big Red Truck along with the BSS students will cater for the day, including a roast beef dinner after end-of-day drinks. Trade displays and barista coffee bar completes and compliments the Forum's offerings to all those interested in beef production excellence in the central-west.

(MLA – Meat and Livestock Australia; PDS Producer Demonstration Site; FMD Foot & Mouth Disease; BSS Blackall State School)

BeefUp Forum banner goes up.

Points to reflect on....

Young Breeders are a large part of your herd.

In a typical western Q, self-replacing breeder enterprise, joining @2 years & culling @ 10; 43% of your breeding herd is 4 years or younger.

So helping these youngins have more calves, we markedly increase all-of-herd productivity, turn-off, cash flow and profit.

So consider these for ideal Critical Mating Weights - CMW

- Give them the best pasture
- Post weaning supplementation
- Targeted Wet Season & P supplementation if deficient
- Watch for worms – test & treat
- Forage budget and maybe adjust stocking rate
- Spike Feed in the third trimester of pregnancy
- Control Mate
- Aim to eventually join your maiden heifers for just 2 cycles (6 weeks). This gives these novice mothers, with their first calf at foot and still growing herself, that extra time to re-conceive, and then be synchronised when they join the main breeder groups.

GIRL POWER PROJECT 2021

PROJECT ZOOM SESSION – MARCH 2023. Leading northern beef producer James Lord, Mt Isa, shared insights, learning and knowledge of good breeder herd management and practices in the northern rangelands. Facilitated by Ed Wood, with 8 attendees.

MONDAY 6TH MARCH TELE-UPDATE

ROBYN ADAMS, STRATFORD

- Good Season, probably best in my 20 years here. Looks like haying off, though when go close, look into pasture, & watch cattle eating, plenty of wet, green stuff. The hay is the multitude of seed heads, and mostly second go around.
- Still down the two better paddocks with the fence removal to expedite the Jericho Blackall main road realignment and bituminising, new fence not yet rebuilt.
- Behind with processing, with no mobs marked yet. Looks like some big boys will make it shades of NT, so will use both Metacam and Trisolfen to make as best as possible (mindful of some losses happening regionally on these).
- This is the set-up for the dilemma of gathering data for the PDS. Would love to weight all the trial calves and their mothers; but realistically time frames now demand the essentials are done as quickly as possible, and the nice2do will get left as an unfulfilled wish.
- I have included my #2's heifers into the project now. These the biggest for their age ever at SFD; young bulls got in and will accidentally do a good experiment in yearling joins in better years. So plenty of preg testing this year, & probably do in two stages so can do foetal aging on all.
- I was planning on a three month join last year, from 4 & 1/2months the previous year. Alas, some SenAngus bulls have had other ideas so some small black calves now hitting the ground. I need to factor in an over-winter remainder cow calf mob, all ages, into my Heifer Management Plan, as currently the group of retained PTE #9, #0 & #1 are having those late calves and my figures have gone from rubbery to runny. With enough feed and pimelea looking threatening, I retained these and was to do reclassify at EoW. Again, a rethink now required, especially with still having plenty of feed and the market going south.
- The retention of calves from PT to marking is looking better this year for my maidens that I put into a good paddock close to the house. Also, will look closely at the drys and body condition of mums when these come through, for data and learnings.
- Saturday 25th March FILED DAY at GLENSTAR

JAMES LORD, MAY DOWNS MT ISA, GUEST PRESENTER

FIELD DAY

GLENSTAR

SATURDAY 25TH MARCH 2023

Tea, Coffee & Catch-Up from 8.15am
Homestead Presentations from 9.00am
'In the Paddock' after Smoko
With Lunch & Afternoon Sessions in the field

Nichole James of *Glenstar* with: DUC, CHRRUP, QDAF & Other Agencies & Update

Exploring & demonstrating profitability and ideas that:

- Improve production, processes & profitability including through strategic infrastructure
- Increase breeder fertility & profitability through focus on young replacement heifers
- Reduce erosion potential and hot spots, including post-rain weed surveillance
- Increase pasture quality & quantity, and its recovery & rebuild
- Improve land condition assessment through the seasons

PRESENTATIONS & DEMONSTRATIONS, FIELD WALKS & TALKS

INCLUDES **GIRL POWER PROJECT, ECOGRAZEN EXCELLENCE PROJECT & FUTURE DROUGHT PROJECT**

TO GET THERE Just north of the Capricorn Highway, between Jericho and Barcaldine

Coming from Barcaldine, it's 46 kilometres; turn left after the flat with lots of signs

From Jericho, it's 34 kilometres, turn right after crossing Alice River & amenity block

CHRRUP
Advancing rural communities

SQNNSW
Innovation Hub

DESERT UPLANDS EST 1995 COMMITTEE

Smokos & Lunch provided so please ring, text or email **Robyn** for catering numbers by Monday 20th March **0447 179 974** **46510939** stratford01@bigpond.com
info@desertuplands.org.au (Nichole James 0411 193 174 & Ed Wood 0428 874 240)

COMBINED PROJECTS 'DESERT DAZE' – LAKE DUNN, JUNE 2023. Another regional gathering with regional publicity prior. Presenters included QDAF and Project Lead, covering heifer issues, data results and the link to grazing management in desert woodlands. 12 producers attended plus presenters. Outer of bi-fold program below.

GIRL POWER PROJECT

GPP is an MLA (Meat & Livestock Australia) PDS (Producer Demonstration Site) program project over four years trialling those better management practices for nurturing replacement heifers within the challenges of Desert Uplands' and similar wooded arid rangelands. DUC is partnering with CHRRUP with Ed Wood the Project Officer. Started late in 2020 with the introductory workshop in Barcaldine, GPP now has over 2000 heifers in ten enterprises; with producers tracking growth, conception and other elements of the #9, #0 & #1 females.

The GIRL POWER PROJECT is now well over halfway. Some early assumptions regarding CMW (Critical Mating Weight) have been challenged by the better seasons; whist the most difficult being data collection and formatting within normal stock operations, and the Heifer Management Plan being head-held and not on paper, yet.....

Most insights have come from paying closer attention to these novice breeders as they grow and mature from weaners to joining and then their reconception whilst being first-time mums. With paddock records indicating unexplained calf losses between preg-testing and weaning, a further MLA PDS project has been proposed.....

MATERIX PROJECT

..... On-property demonstrations and trialling of different approaches and management practices to support young maiden mothers and second calvers to improve the rate of which they bring a healthy calf to the yards for weaning. Have these better seasons with faster weight gains meant these novice breeders are having calves much younger, and this immaturity is exasperating the problem???

Central Queensland University is currently researching this same issue, so a collaborative tripartisan approach is being planned with MLA & DUC, along with producers who wish to participate in a new co-contribution model.

Whilst the proposal is with MLA and changes as it develops, any input or desire to be involved – please email info@desertuplands.org.au ; stratfordo1@bigpond.com or

Robyn ADAMS, Chair, Desert Uplands Committee

4651 0939 0447179974 20th June 2023

LAKE DUNN 24TH JUNE 2023

After an amazing season, our current projects to ponder.

Our partnership for today is:

- DESERT UPLANDS COMMITTEE – DUC, Barcaldine
- DESERT REC CLUB, Lake Dunn, Aramac
- DEPARTMENT OF AGRICULTURE & FISHERIES, Longreach and Charters Towers
- CENTRAL HIGHLANDS REGIONAL RESOURCE PLANNING GROUP – CHRRUP, Emerald
- DROUGHT INNOVATION HUB, Longreach
- NORTH QUEENSLAND DRY TROPICS – NQDT, Townsville
- DESERT CHANNELS QUEENSLAND - DCQ, Longreach
- RFDS with this information and booklets

Useful Contacts:

- Counselling / Wellbeing Support: (Not a Crises contact) Self-referrals accepted: outback@rfdsqld.com.au 1300 010 174
- RFDS Community Events: Email: elynch@rfdsqld.com.au Phone: 0497 843 312, to attend community events. Coordinate training in Rural Minds (Half Day Training) or Mental Health First Aid (Two Day Training).
- Medical Chest information: email MedicalChest@rfdsqld.com.au phone: 1300 624 378
- RFDS 24hr Medical Service 1300 697 337

Other Numbers:

- EMERGENCY: 000
- Lifeline: 131114
- 13Health (13432584)
- 1300mhcall (1300642255)

WESTECH FIELD DAYS – BARCALDINE, SEPTEMBER 2023. Working with QDAF, Drought Hub and others, Alejandro presented at the two days of Westech. His regenerative desert grazing practices garnered considerable interest, with the second day's presentation focussing on his heifer, cow, calving and culling elements. Over 70 attended the two presentations.

MLA FEEDBACK MAGAZINE – APRIL 2024, FOUR PAGES ON THE Girl Power Project, referencing two producers involved. Meat & Livestock Australia : Feedback Magazine : Autumn 2024 by Meat... - Flipsnack

FINAL FIELD DAY - STRATFORD FIELD DAY, APRIL 2024. Various presenters by Ed Wood, as the GPP Project Officer complemented and extrapolated by QDAF Scientists and Extension Officers. Good tour of the property sees all classes of heifers, cows and their calves, and the preferable better paddocks for their novice mothers. Great feedback, over 30 attendees plus presenters and others.

https://www.northqueenslandregister.com.au/story/8604007/enhancing-livestock-production-with-girl-power-project/

Stratford Field Day

Come see & hear about two decades of improving cattle, country, grazing and production on Stratford, through:

- Planned and integrated infrastructure upgrades
- Watching, learning, monitoring and resting its pastures
- Tightening the mating window and consequences
- Lifting heifer weights and conception rates
- Hybrid vigour thru new genetics over base DM herd
- Q&A session to help improve underperformance
- With QDAF, CHRRUP, DUC project and trial results

Refreshments, smokos and lunches catered, so please let Robyn Adams know beforehand.

0447 179 974 (07) 4651 0939 stratford01@bigpond.com

Follow the signs off the Jericho-Blackall and Narbethong Roads to first meeting point and quick cuppa.

Stratford is 42kms south of Jericho and 75kms north of Blackall on the Jericho-Blackall Road; 81kms from Barcaldine (south on the Landsborough 26kms and east turn for 55kms along the Narbethong Road)

This event is being supported by the MLA funded Producer Demonstration Site project "Girl Power".

CHRRUP

Producer

MEAT & LIVESTOCK AUSTRALIA

Supported by Natural Resources Recovery Program

GRAZING FUTURES & WQNBRC Throughout the four years, the Girl Power Project was discussed and highlighted at various meeting of the QDAF Grazing Futures periodic Roundtable, normally held in Longreach; and at regional gatherings of the Western Queensland group of the Northern Australia Beef Research Committee. Through the later, the Desert Uplands Committee sort advice and support for the upcoming MATERIX PROJECT, another 4year PDS, that will further demonstrate those better grazing and management practices that can lift the performance of replacement breeders in their currently suboptimal early calving, mothering and reproductive performance, in the more challenging wooded native pastures of inland Queensland.