

Calculating Return on Investment of Water and Wire – Using grass to feed cows in 2023

Background:

Fred and Cath Clark are the landholders of “Euthulla”, a 2,490ha beef cattle breeding property northwest of Roma, Queensland, Australia. After completing succession of operational control in July 2021 and ownership in February 2022, water projects were planned and completed on “Euthulla” in both 2022 and 2023 to:

- a) drought proof the property by providing secure water to livestock through bore water and
- b) improve water infrastructure to enable rotational grazing of a single mob.

Return on Investment (ROI) calculations were not done prior to either water project. However, ROI calculations were undertaken in October 2023 and reviewed in February 2024 with coaching from Raymond Stacey (RCS Advisor). This review was undertaken as part of the Soil and Landscapes Project, a program supported by RCS, through funding from the Australian Government’s Future Drought Fund.

Return on Investment Summary:

There were two distinct water and wire and projects undertaken:

- Western Water Project - August to November 2022 - ROI = 31.8%
- Eastern Water Project - July to September 2023 - ROI = 37.2%

Calculation workings are included as a single page at the end of this article.

Definitions:

1. ‘Un-watered paddocks’ were those that fit the following criteria:
 - a. Surface water (dams) only prior to water projects commencing in 2022.
 - b. All surface water had dried up by 31st July 2023.
 - c. Only able to be grazed after 31st July 2023 because of a water project providing trough water to the paddock.
2. ‘Watered Paddocks’ were those that had surface water remaining 31st July to 31st December 2023 and were able to be grazed without water projects. This period of time was a notably dry season.

Assumptions:

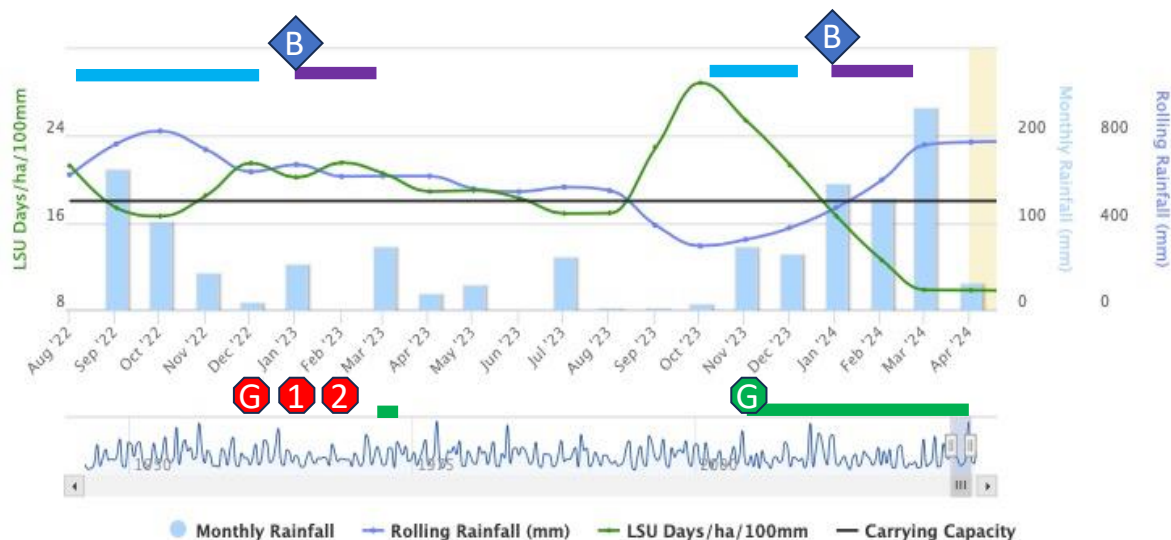
1. Without water projects, no Stock Days (SD) could be removed/grazed from the ‘Un-watered paddocks’ from 31st July to 31st December 2023.
2. Agistment for livestock was calculated at \$1/LSU/Day from 31st July 2023. In October 2023 this was considered a reasonable/rational cost of agistment within 200km of “Euthulla”.
3. The cost of contracted labour is included in expense calculations.
4. Cost of labour for business owners was not included in expense calculations as it was an overhead not specifically attributable to water projects.

Other Points to Note:

Environmental Conditions

The environmental conditions from September 2022 through to November 2023 are important in providing context to the decision to invest in water and wire to feed cattle. An exert from the “Euthulla” [MaiaGrazing](#) profile in the picture below displays the change in rolling rainfall and stocking rate (SR) per 100mm during this period. Other environmental observations assist with understanding the environmental situation in 2023:

- The significant rain in September and October 2022 fell when it was too cold to grow much usable pasture/forage; instead, it created a significant Pimelea challenge that required supplementation dry lick infused with Bentonite Clay.
- The significant upward trend of the SR per 100mm (green line) from August to October 2023 is caused by two factors:
 - a) breeders enter their 3rd trimester increasing the stocking rate, and primarily
 - b) the 365-day rolling rainfall (blue line) decreasing as it loses the rain from September and October 2022. NB. The rolling rainfall to this point is positively distorted by the rain in September and October 2022 and does not accurately correlate to the pasture growth during 2023.
- The significant downward trend of the SR per 100mm in November and December 2023 caused by relatively small rain in those months shows the compounding positive influence of destocking to a lower SR in dry times. If destocking had not occurred, the rainfall would not have had such a positive impact on SR to 100mm even while the breeders were entering their highest feed demand period (lactation) of the breeding cycle.



G Missed Green Gate (16 Dec) = Plan to shorten Joining period to 10 weeks (9 Jan-20 Mar)
 - Purpose: To remove cows that take more than 3 cycles to get pregnant

1 Missed Critical Date 1 (13 Jan) = Destocked 25% of breeders pre-joining on 9 Jan
 - Purpose: Reduce Stocking Rate (grazing pressure)

2 Missed Critical Date 2 (24 Feb) = Early Wean 20 March, educated and sold 4 Apr
 - Purpose: Maintain breeder condition and support fetus growth.

G Achieved Green Date 23 Nov

B Branding, all cattle in Yards 8 Jan

Growing Season

Joining Period

Calving Period

Destocking

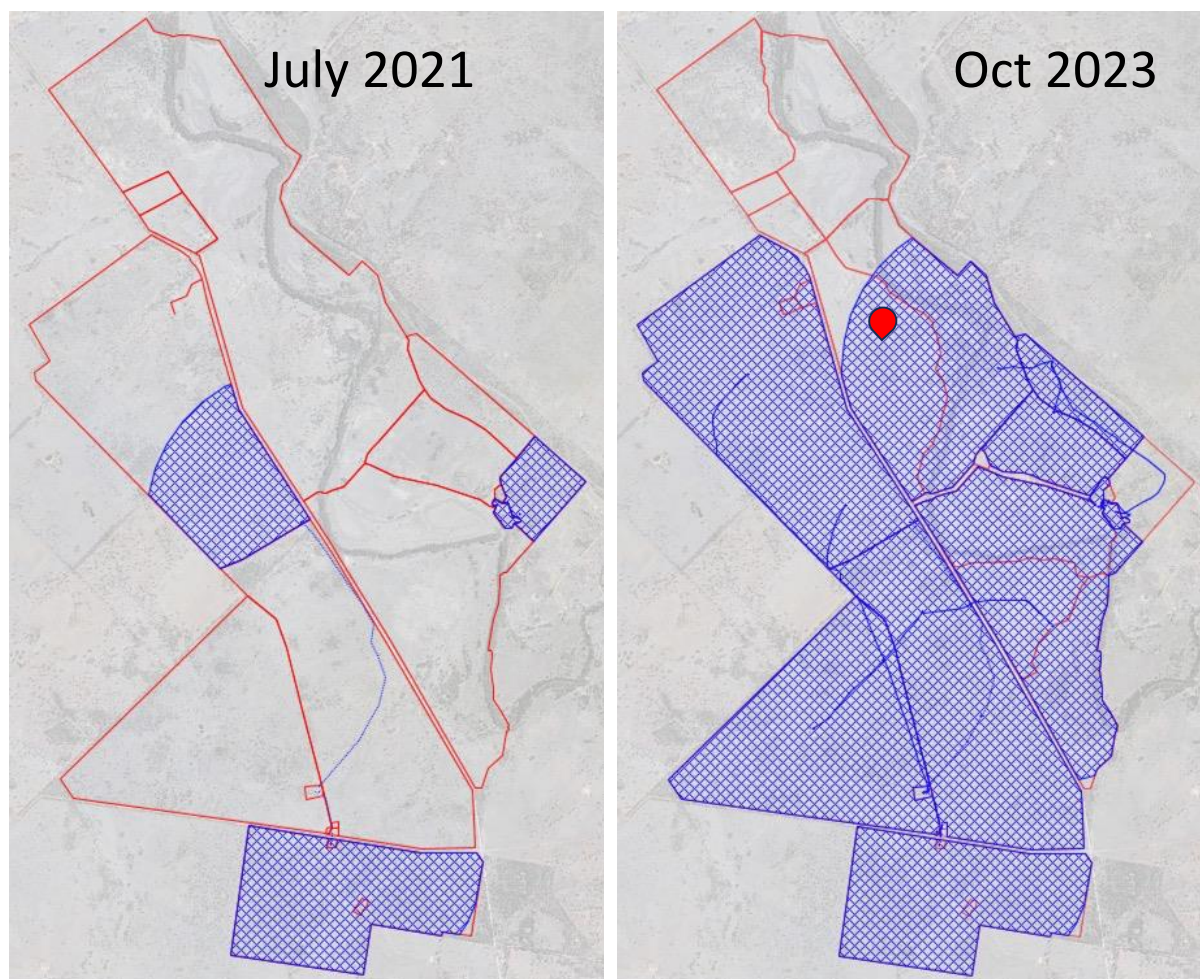
An ethical decision was made not to sell or transport-off any breeders if they were in their 3rd trimester or had a calf at foot during the period 31st July to 31st December 2023.

The value of pasture rest

The benefit of resting 'watered' paddocks is not factored into calculations. I.e., Rest afforded to these paddocks while the herd was grazing un-watered paddocks. The health of these paddocks, whilst they were overgrazed in 2023, would have been significantly worse at the end of 2023 if not for the use of wire (after water) to manage grazing pressure. The monitoring site in the photos below (Monitoring Site 2) is within the Eastern Water Project and was last grazed in 2023 from 30th July to 6th August. The purpose of the wire in this area was to stop the herd preferentially grazing specific areas and encourage the herd onto previously under-utilised pasture along the creek-line.

Property maps

The two property maps below show "Euthulla" in July 2021 before all project work and October 2023 after both projects were completed. The red lines indicate paddock boundaries (including some sub-division). The blue shading shows the areas within 1.5km of a trough (taking into account paddock boundaries). The red marker indicates the location of Monitoring Site 2 (photos included further below).



Return on Investment Calculations:

Western Water Project, Aug-Nov 2022

CAPEX:

Water	\$ 102,114
Wire	\$ 9,003
Earthworks	\$ 14,110
Freight	\$ 1,507
Total	\$ 126,734

Infrastructure Results:

- 3x 30,000lt tanks with Remote Monitors
- 5x Troughs
- 7.4kms of 63mm Pipe
- Upgraded Submersible Pump

Strategic Results:

- Mob up all cattle into single herd
- Drought proof western side of property (all grazing land within 1.5km of a trough)

Return on Investment 31/07/23 to 31/12/23:

Graze Period in Un-watered Paddocks:

8th Oct to 31st Dec 23 (12 weeks).

Grazing Return: 40,320 SD removed by Herd (300 breeders @ 1.6LSU for 12 weeks)

Financial Return: \$ 40,320
(40,320 SD @ \$1/day)

Return On Investment: 31.8%
(\$ 40,320 / \$ 126,734) in 12 weeks

Eastern Water Project, Jul-Sep 2023

CAPEX:

Water	\$ 31,970
Wire	\$ 18,855
Earthworks	\$ 8,925
Freight	\$ 1,364
Equipment Hire	\$ 999
Total	\$ 62,113

Infrastructure Results:

- 2x 22,500lt tanks with Remote Monitors
- 2x Troughs (purchased, 2 troughs recycled and not included in costs)
- 4.3kms of 63mm Pipe

Strategic Results:

- Graze un-watered paddocks.
- Subdivide un-watered paddocks to improve management of grazing pressure.
- Not purchase feed or agistment for breeders in 3rd trimester or with calves at foot.

Return on Investment 31/07/23 to 31/12/23:

Graze Period in Un-Grazable Paddocks:

31st Jul to 7th Oct 23 (10 weeks).

Grazing Return: 23,100 SD removed by Herd (300 breeders @ 1.1LSU for 10 weeks)

Financial Return: \$ 23,100
(23,100 SD @ \$1/day)

Return On Investment: 37.2%
(\$ 23,100 / \$ 62,113) in 10 weeks

Monitoring Site 2



25 Apr 2023

26 Nov 2023

26 Apr 2024

To learn more about Fred and Cath Clark’s journey towards drought proofing “Euthulla”;

- Read their case study - <https://www.rcsaustralia.com.au/clarks-from-euthulla/>
- Watch their 5-minute video - <https://www.youtube.com/watch?v=8sXGnHCzY&t>
- Watch the Seminar video where Fred and Cath join a panel of graziers telling their drought resilient stories - <https://www.youtube.com/watch?v=URytf7snl4s&t>



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